

# Amateur Radio

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Number 12  
December 2011  
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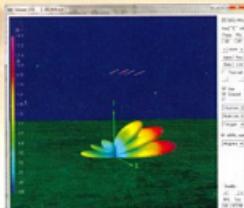


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*Season's Greetings*



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# Amateur Radio

The Journal of the Wireless Institute of Australia

Volume 79  
Number 12  
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## Editorial

### Editor

Peter Freeman VK3PF  
editor@wia.org.au

### Technical Editor

Peter Gibson VK3AZL

### Publications committee

Don Jackson VK3DBB  
Evan Jarman VK3ANI  
Bill Roper VK3BR  
Ewen Templeton VK3OW  
Ernie Walls VK3FM  
Greg Williams VK3VT

### All circulation matters

nationaloffice@wia.org.au

### How to submit material

Secretary  
AR Publications Committee  
PO Box 2042  
BAYSWATER VIC 3153  
or armag@wia.org.au

### Letters to Editor

Editor AR Magazine  
PO Box 273  
Churchill Vic 3842  
or editor@wia.org.au

### Hamads

'Hamads'  
PO Box 2042  
BAYSWATER VIC 3153  
hamads@wia.org.au

### Advertising

All enquiries to  
Advertising Manager  
AR Publications Committee  
PO Box 2042  
BAYSWATER VIC 3153  
or admanager@wia.org.au

### Registered Office

Unit 20 11-13 Havelock Road  
BAYSWATER VIC 3153  
Australia  
Phone: 03 9729 0400  
Fax: 03 9729 7325

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## General

NZ Amateur of the year 2010, and now VK2DWS	5
David W Searle VK2DWS	
<b>Science Alive</b>	6
Paul Schulz VK5FPWA	
<b>The 2011 VK9HR DXpedition to Lord Howe Island</b>	10
John Chalkiarakis VK3YP	
<b>Hunter Radio Group catches up with Jeff Johnson VK4XJJ in Newcastle</b>	13
Grahame O'Brien VK2FA	
<b>Darcy Hancock VK5RJ</b>	15
Ian Sutcliffe VK5IS	
<b>It all started 100 years ago</b>	27
The Centenary Celebrations Committee	
<b>Western Vic JOTA/JOTI 2011</b>	41
Ash Clark VK3SSB	
<b>Gridsquare Standings at 17 October 2011</b>	52



### This month's cover

In this issue, Justin Giles-Clark VK7TW presents an overview of modern communications technologies and techniques, based on his presentation at the Centenary Conference in May 2010. The main images are a photo of Justin's High Performance Software Defined radio (HPSDR) transceiver and a screen shot of the PowerSDR software. Images by Justin Giles-Clark VK7TW. The inset photo shows the predicted radiation pattern of the four element Yagi for 6 m designed by Paul McMahon VK3DIP.

## Contributions to Amateur Radio



Amateur Radio is a forum for WA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

## Technical

<b>Foundation Corner 17: Basic digital communication or The Diddly Dah's</b>	18
Ross Pittard VK3CE	
<b>Can't you hear me calling?</b>	20
Bill Isdale VK4IS	
<b>Modern communications technologies – A quick Centenary review and the future!</b>	23
Justin Giles-Clark VK7TW	
<b>A four element six metre Yagi for 50 to 52.5 MHz</b>	32
Paul McMahon VK3DIP	

## Columns

<b>ALARA</b>	54
<b>AMSAT</b>	44
<b>Contests</b>	46, 47, 48, 51
<b>DX - News &amp; Views</b>	8
<b>Editorial</b>	2
<b>Hamads</b>	62
<b>Silent Key</b>	12
<b>Spotlight On SWLing</b>	43
<b>VHF/UHF – An Expanding World</b>	56
<b>WIA Comment</b>	3, 5
<b>WIA News</b>	4
<b>News from:</b>	
<b>VK2</b>	55
<b>VK3</b>	14, 22
<b>VK5</b>	17
<b>VK6</b>	13
<b>VK7</b>	50

### Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

### Photostat copies

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### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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Unit 20, 11-13 Havelock Road  
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email: [nationaloffice@wia.org.au](mailto:nationaloffice@wia.org.au)  
<http://www.wia.org.au>

All mail to

**PO Box 2042 BAYSWATER VIC 3153**

Business hours: 10am – 4pm weekdays

#### National Office staff

Manager	Mal Brooks	VK3FDSL
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# Editorial

Peter Freeman VK3PF

### Another year almost gone

Here we are with the December issue – where has the last year gone?

The Publications Committee has been busy all year. We had the *Callbook* out more or less on target, but we are reviewing the entire production process in an attempt to see if we can identify sticking points. We anticipate having that review completed this year so that we have a refined production schedule for the next edition.

More significantly, we are overall very satisfied with the results across the year with respect to *AR*. We moved the production process to a new publication house this year – Fontana Design. The principal of Fontana Design is Sergio VK3SFG, who introduced a new layout style and has worked hard with the Publications Committee throughout the year. We have observed occasional minor hiccups with the printing process used, but generally have been happy with the magazine overall. As always, the Publications Committee will review our production options over the next few weeks to see if we can achieve even better results in the future within our allocated budget.

### Amateur radio features in technical press

An interesting overview of modern amateur radio appeared in a recent issue of the technical trade journal EDN magazine. The article "Ham radio in the 21<sup>st</sup> century" was written by Doug Grant K1DG. The author begins by pointing out that Marconi can be considered to be an amateur. He then moves on from the beginnings of our hobby through to the current state of the art. It makes for an interesting read, even if the focus is on activities in the US. You can read the article online at [www.edn.com](http://www.edn.com) – search for "ham radio" and it should come up in the search results, along with some other interesting reading.

### In this issue

We have two articles this month that are a result of the Centenary celebrations last year: A review of the Centenary activities by WIA Historian Peter Wolfenden VK3RV, and a paper based on one of the presentations made at the Symposium held in association with the AGM – Justin Giles-Clark VK7TW gave a very interesting overview of modern communications technologies and techniques, and we are pleased to publish his written report in this issue.

### Season's greetings

On behalf of the Publications Committee, I extend season's greetings to all. Thank you to all our contributors over the past year. Without the regular columns and club news contributions, and the many articles submitted, we would not have a magazine that seems to have broad support across its readers.

We look forward to providing the magazine again in the New Year. Remember that the January and February volumes are published as a single combined issue, due to be available in late January 2012.

I do have a little bad news for those who buy the magazine from the newsstands: it has been decided that the cover price will increase to \$8.00 per issue, commencing with the January/February 2012 issue. This once again means that it will be cheaper to be a member of the WIA than to buy every issue of *AR*. Not to mention that you will receive other membership benefits and contribute to the work of the WIA in supporting your operating privileges.

Cheers,

Peter VK3PF



Michael Owen VK3KI

## Has the Club Grant Scheme run its course?

Meeting at the home of the late Chris Jones in Menai, near Sydney, on 8 and 9 April 2005 the WIA Board decided in principle to establish a Club Grant Scheme, initially allocating \$1,500 for the 2006 year, but soon increasing the amount to \$5,000.

In a carefully considered approach it was decided to support useful and or innovative projects to be undertaken by affiliated clubs. Later, the Rules initially adopted were amended to allow different categories of projects that were useful and or innovative to be specifically identified by the Board.

The Rules required the Board to appoint a Grant Committee of three to recommend grants to the Board. The Rules say that "*The Board shall give preference to appointing members who come from different geographic areas and who by reason of their occupation or experience are likely to be generally respected by the amateur community and have experience relevant to their obligations under these Rules ...*"

The task of the Grant Committee is not easy, with their Report to the Board to include:

- (i) A brief summary of each of the Applications it has considered;
- (ii) A detailed description of each Proposal (if any) it recommends be supported, setting out its reasons;
- (iii) The amount of Grant it recommends be made for each Proposal it recommends be supported (in total not to exceed the Grant Amount).
- (iv) Any other fact or matter that the Grant Committee considers should be brought to the attention of the Board.

This approach provides guidance for the clubs considering making applications for a grant and ensures an open and transparent process.

All the Grant Committee Reports to the Board, other than the very first report, are on the WIA website, together with the current Rules.

In the first year, 2006, the Grant Committee, Ken Fuller, Deane Blackman and Wally Howse, reported that some 18 applications for grants had been received and made recommendations for grants and suggestions for the future of the Scheme to the Board.

Since then the Board has identified specific categories of projects that it will support and the maximum amount of grants for a year has increased to \$6,000.

In the five years from 2006 to 2010 the Grants Committee has recommended some 36 separate projects be supported by grants totalling \$27,180.

Obviously, while the WIA wishes to support useful and or innovative projects by clubs, it also has regard to the number of WIA members in a club.

It does not make a lot of sense to support clubs that do not support the WIA. The Rules provide that, except in the case of a project having particular merit, at least 50% of the members of the club who are amateurs must also be members of the WIA to receive a grant, and the Grant Committee is encouraged to have regard to the number of WIA members in a club when considering recommending a grant.

This year the Board decided that the WIA would support projects falling into two categories, namely projects and activities to be conducted before 1 June 2012 to attract new amateurs, but focussed on people under 25; and amateur radio projects that are useful and innovative and that utilise both information technologies and radio communications.

The 2011 Scheme was advertised in the June issue of *Amateur Radio*, with applications to close on 25 July.

To our surprise, only three applications were received.

One club, for reasons that seemed to me to be quite valid, sought an extension of time to lodge an application that it had planned to lodge.

Given the few applications received, it seemed reasonable to accede to that request, but if we were to accede to that request, it seemed unfair not to allow an extended period for all clubs, and so if we were to accede to that request it also seemed reasonable to allow further time for all clubs, and so the time limit was extended to 9 August.

With hindsight, that may have been a mistake and may have encouraged some projects to be put together in too much haste.

On the other hand, only three applications certainly does imply that there is now little interest in the Scheme.

I think that a number of comments can be made about some of the applications in the last year or so, and in particular some proposed projects really represent ordinary and routine expenditure and some projects are proposed that are very remote from the categories of project that have been identified.

In fact, and particularly disappointing, no project was proposed this year that addressed the category we had defined of amateur radio projects that are useful and innovative and that utilise both information technologies and radio communications.

Has the Club Grant Scheme run its course?

Continued on page 5

# WIA news

## Club Grants for 2011 announced

The Board of the WIA has accepted the recommendations of the 2011 Club Grant Committee and announced the successful applications.

Two categories of project were identified that the WIA would support this year. The first category was projects and activities to be conducted before 1 June 2012 to attract new amateurs, but focussed on people under 25 and the second category was amateur radio projects that are useful and innovative and that utilise both information technologies and radio communications.

No projects were proposed by any club that fell into the second category.

The Oxley Region Amateur Radio Club will be supported by a grant of \$1,500 to support a mobile shack as a promotional tool to attract new members, for Field Days and emergency communications within their local area.

The Brisbane Amateur Radio Club will receive a grant of \$600 to help them to improve the quality of their meeting presentations using digital projection equipment.

The St George Amateur Radio Society Inc. will also be supported by a grant of \$600 for a basic trailer to be converted into a mobile display and field operations unit.

The Sunraysia Radio Group will be supported by a grant of \$1,000 to support their work promoting amateur radio to the Scout Districts in the Mildura/Wentworth area.

The Adelaide Hills Amateur Radio Society will receive a grant of \$600 to support building on the established

training room by the addition of training aids and a number of kits.

The Illawarra Amateur Radio Society will be supported by a grant of \$900 to provide a projector and basic transceiver and antenna to supplement existing training aids for classes.

The full report of the 2011 Grant Committee can be found on the WIA website.

## Submissions close to the NSW Planning System Review

Many amateurs have lodged submissions to the NSW Planning System Review, proposing radio masts, antennas or aerials for use by licensed radio amateurs be classified under exempt or complying development.

The submissions lodged by radio amateurs appear to easily outnumber the submissions received on any other issue, so it appears certain that this issue will be considered.

The NSW Planning Review will publish an Issues Paper in early December which will cover the ideas and feedback received during the initial consultation phase. Further feedback and comment on the Issues Paper will be invited to be received by Friday 17 February.

The WIA lodged its own submission and that may be viewed on the WIA website.

WIA Vice President Phil Wait thanked the NSW Advisory Committee for their support, all the amateurs who lodged submissions and in particular acknowledged Roger Harrison VK2ZRH for his valuable assistance on this issue.

## WIA National Field Day 2012

The dates of the next WIA National Field Day will be the weekend of the 14th and 15th of April 2012. This

will provide two days of possible operation and is in response to the requests from some club for some flexibility to suit their local community with operation on either the Saturday or Sunday. This is not suggesting that the clubs would need to operate their displays over the two days unless they wanted to.

Advertising material will require a little customising by local clubs to match the times and date of the local activity. Acknowledging valuable feedback from clubs, some changes to the rules and guidelines of the 2012 event will be advised to support the two days of operation of this event as it is certainly not a traditional amateur radio contest. The rewarding or recognition of clubs who take pride in their preparation and presentation will still be encouraged.

The objective of the WIA National Field Day is to positively place the hobby of amateur radio in front of the general public, to provide various clubs with an opportunity to promote their activities and increase the awareness of amateur radio training opportunities, either via the local clubs or the amateur radio fraternity as a whole.

The event will continue to be coordinated and managed by a small committee. In September, anyone interested in joining this committee were invited to contact the WIA through the appropriate State WIA Advisory Committee prior to the 28th of October 2011.

The chair of each Advisory Committee was asked to forward these nominations during the first week of November to the WIA office.

Former committee members are welcome to nominate if they wish to continue in this role.

## Try VHF/UHF Contesting

### ► Ross Hull Memorial VHF Contest January 2012

Do you have a transceiver with any of the VHF or UHF bands in addition to HF? Then have some fun during the upcoming VHF/UHF events. Listen around in the band segments xxx.150 - xxx.250 MHz (where xxx = 50, 144, 432 or 1296) on USB. You may be pleasantly surprised at what you can work! Support the contest by submitting an entry.



Is there now little interest by clubs in projects of the kind that could attract grants?

Or, was it just a combination of unrelated factors that resulted in a coincidence of so few applications this year? Or, is the way we are conducting the Scheme a problem? Can we change the process, the timing, or something else to make it more attractive to clubs?

The Board will not make a decision about continuing the Scheme until it meets at Mildura after the Open Forum at the 2012 WIA Annual Conference.

We invite all clubs to make written submissions on the matters I have raised, and to send them to us. In order to ensure balance, we encourage positive as well as negative reactions to the Scheme as it is now.

We will circulate all submissions we receive with the Open Forum reports that we will send to everyone who has registered for the Annual Conference so all views can be taken into account when it is discussed at the Open Forum.

Then, the Board will be in a position to decide the matter.



## NZ Amateur of the year 2010, and now VK2DWS

David W Searle VK2DWS

**Editor's note:** At the June 2011 NZART Conference held in Wellington, President Roy Symon ZL2KH announced that the NZ Amateur of the Year for 2010 was David W Searle ZL3DWS. This was in recognition of "the tremendous results he achieved in his ZL3 Radio Buildathon projects."

In accepting the award David commented: *"If we each share our enthusiasm for a great hobby with just one young person, their interest in radio, communicating and electronics could last a life time."*

Following a swarm of damaging earthquakes in Christchurch, I relocated my family to North Bondi, Sydney, in March, 2011 and am greatly enjoying and appreciating the warm support and friendship of the Waverley Amateur Radio Society (WARS - [www.w2bv.org](http://www.w2bv.org)), Sydney's oldest radio club. They are a wonderful lot.

I left Christchurch with XYL Mary and pregnant daughter Angela in rather a rush in March, because they could not tolerate the effects of the earthquakes any longer. The contents of our family home of 14 years were condensed to just seven tea chests. All my amateur treasures plus 14 years of amateur junk was given away before leaving: We could not afford to ship it. Some of it really was junk though! It is amazing what you gather over 14 years.



David ZL3DWS, NZ Amateur of the Year 2010, and now VK2DWS, at the Waverley ARS station. Photo courtesy of Daniel VK2FDGW.

Upon arriving at WARS I was made very welcome and was lent the gear I needed by the club. I was overwhelmed. For each club meeting and event, Raffy Shammy VK2RF picks me up and returns me home. I was pretty shell shocked upon arriving in Sydney and the friendships started and the support extended by WARS has meant

the whole family has settled in much quicker. It illustrates just how universal our hobby is and how welcoming are Australian amateurs.

I am now proud to be an active contributing member at WARS, having delivered a talk on "The Secret Listeners" at the June meeting.



# Science Alive

Paul Schulz VK5FPAW

On the weekend of 4-6 August, the Elizabeth Amateur Radio Club ran a booth at Science Alive, the South Australian premier science education event. This event is held at the Adelaide Showgrounds and kicks off the National Science Week activities in South Australia.

This was the first year that the organisers were going to charge for admission, something forced on them by the economic climate, and it was uncertain as to how this would affect attendance. The weather was also inclement over the entire weekend, which may also have affected the attendance. Regardless of this though, the organisers estimate that 24,000 people passed through the doors of the three day event, including 2,500 high school students (on the Friday) and 16,000 under 18s on the Saturday and Sunday.

The booth display was setup to cover a broad range of amateur radio activities and visitors were encouraged to get involved with radio in various ways. This may have either been by having a go at the Morse code keys or having a chat on



Photo 1: Booth display – Codan HF manpack, Yaesu FT-817, Morse keys, documentation and laptop for decoding the Morse transmissions.

SSB on a couple of HF radios across the booth. There was also a 'radio shack' setup and a display featuring amateur radio satellites, including the recently launched ARRISSat. It had just been pushed out of the International Space Station!

The Morse display consisted of a couple of simple brass strips, connected to tone generators.

Young kids could quite happily bang away on these, and often, almost to the point of exasperation, they did. For those that were a little older, creating Morse code, which a computer could then decode proved to be more engaging, particularly when, with a little bit of practice, it was possible to actually get consistently readable results.

A Codan HF manpack radio had been kindly supplied for the event by Codan. Manufactured in South Australia, this radio was used together with another HF radio and some dummy loads to communicate across the booth on SSB. Kids got a kick out of being able to talk to siblings, parents and friends via this technology, particularly when shifting off frequency caused the pitch of the transmission to alter up and down. It was a good chance to give people an introduction to basic radio techniques. Asking the kids what they were enjoying at the show also gave them the opportunity to reflect on why they were at the event.

For those people who were familiar with amateur radio of the past, a display of more modern AR satellite and related equipment was also on

Photo 2: People at the booth. An Arrow antenna and ACMA spectrum allocation poster can be seen in the background.



## RADIO AND ELECTRONICS



Photo 3: Bob VK1ZRE talking to the public, with the crowd in the background.

show. A computer ran satellite tracking software, showing where some of the AR satellites were currently located. It was not possible to hear the signals or make contact with them due to the steel roof of the building, but we could point out the arrow antenna and HT as all that was required to get started. A FUNCube dongle was also on show which often led into discussion about the AMSAT-UK's project to launch a Cubesat (FUNCube-1).

There were some displays that did not quite work as expected.

called 'HackerSpace' to join us on the booth. These guys describe themselves as 'a knitting circle for nerds'. They dabble (hack) on electronics and one of their members had brought along their 'Makerbot'. This is a 3D printer or rapid prototyper that creates small objects by extruding plastic, and building up shapes as a series of layers. While there was no direct radio relationship, it was a very attractive feature in the booth and together with the rest of the display gave both groups the opportunity to engage people who may otherwise not have shown interest.

Time will tell, but there were a couple of good connections made, with up to five people who were prospects for the next Foundation licence course being run by Paul VK5PH. There were also some interesting enquiries by school teachers who were wondering how they could include amateur radio in their science curriculum; one of these from an all-girls school!

Thanks to Paul VK5PH for assisting with the display and helping out on the booth, and helpers Dale VK5FSCK and Bob VK1ZRE. Thanks also to Will VK5AHV for providing the Codan radio. Photos are courtesy of Jeff VK5MSE.

There was quite a bit of trouble getting the APRS system working correctly at the site, even though it had worked flawlessly on the bench.

Finally, on a slightly different tangent, the booth was called 'Radio and Electronics' and we had asked another Adelaide group

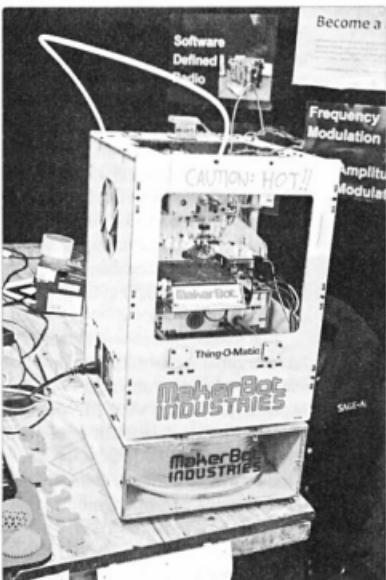


Photo 4: Makerbot – The type of objects that can print can be seen on at the lower left.

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# DX- News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

## T32C breaks the DXpedition QSO record

Well, after all the problems that they had to contend with, the T32C DXpedition has established another record with a provisional QSO total of over 213,000. This is a superb effort. It is also amazing that nearly 25% of all the QSOs are unique callsigns. There appears to be an even split between CW and SSB with about 9% on RTTY. This record has been established without beams, just simple antennas with an emphasis on verticals. This will undoubtedly raise many discussions in the future planning of similar trips. Is it really worth all the trouble to take beams and supports? The T32C boys did have two major factors helping them. The improvement in conditions, and the fact that they were able to mount the verticals near the sea edge, essential to gain the benefit of this antenna on a DXpedition. The original inventory included no less than four four-element Yagis for 12 m, 15 m, 17 m, and 20 m and a six element Yagi for 10 m. Without belittling the achievement, I think that with the beams they may



Photo 1: Verticals on the beach at T32C. Photo by Justin G4TSH.

have made another 5,000 QSOs, for the old saying is still true, 'you can only work them one at a time!' Nevertheless a superb result. Congratulations!

Over the past few years there have been several references to another DXpedition to **Malpelo Island**, which appeared in the 'most wanted DXCC list' in 2010, at the number 12 'spot'. Jorge HK1R says the team is now complete, with 16 operators from eight countries and

including three members of the CQ DX Hall of Fame. The plan now calls for the team to arrive on the island on January 23<sup>rd</sup> or the 24<sup>th</sup>, 2012 and stay for 10-12 days, returning to Colombia on February 6<sup>th</sup>. Elecraft are providing seven of their K3 transceivers and five of their new KPA500 amplifiers. RF Concepts will loan them three Alpha 8410s for use on the low bands. DX Engineering will furnish most of the antennas.

N2OO and the SJDXA have graciously agreed to handle the QSL duties. They did an expert job for 3Y0X and K5D. Contributions are being sought and you will find all the details on their web site: <http://www.hk0na.com>. Direct contributions may go to DXARC in Colombia; K4UEE in North America; DJ9ZB in Europe or JA1ELY for JA/Asia.

In a similar period we will also have another major DXpedition to **Pitcairn Island** by Jacques F6BEE, Nigel G3TXF, Gilles VE2TZT, Michel FM5CD and Vincent F4BKV. They will use the callsign VP6T (OC-044) from January 20<sup>th</sup> to January 29<sup>th</sup> with three stations operating 'around the clock' on 160 m to 10 m CW, SSB and RTTY.



Photo 2: The excellent phased array for 17 metres at T32C. Photo by Justin G4TSH.

Pitcairn has not seen any large-scale amateur DXpedition operation for the past decade, and VP6T has a target of more than 50,000 QSOs. Efforts will be made to make this rare entity available on as many bands as possible, but especially on the low bands. QSL via G3TXF, direct or bureau, and LoTW. QSLing instructions and further information can be found at [www.vp6t.org](http://www.vp6t.org)

The following is from Pista HA5AO and George HA5UK, who stated that due to difficulties in organizing and making arrangements for the transportation of equipment to **Banaba**, they decided to reschedule the HA South Pacific Tour DXpedition to January/February, 2012.

They will leave Budapest on 8 January, 2012. The operation will start from **Tuvalu** on 12 January, as T2HA. They will be back to **Fiji** on 26 January and three days of operation can be expected as 3D2HA. They will leave for **Tarawa** on 31 January. Operation from **Kiribati** will take place until 23 February. They will attempt to go over to **Banaba** for 7-10 days within this period. Although they will do their best to get over to Banaba the exact time of the T33HA Banaba operation can be announced from Tarawa only. Two stations will be on the air from 160-10 metres, on CW, SSB, RTTY and some PSK modes.

The landing permit to Banaba, licenses and flight tickets to Fiji, Tuvalu and Tarawa are in hand. The radios, antennas, PAs and other equipment have already been put together and packed. The weight of these packages exceeds 100 kg (200 pounds). They will bring everything with them, as excess baggage. This DXpedition will be a 'simple two man show'. However the eight week long operating plan, working from three different rare countries, make it very expensive. They will cover the flight

tickets, accommodation and other personal expenses. The excess baggage fees and the transfer to Banaba are extremely expensive. Thus they are seeking support from DX foundations and organizations to help cover these transfer and the excess baggage fees. Personal contributions are also welcomed. More information on <http://ha5ao.novalab.hu>

**PJ4C** is being planned by F6KOP for January 12<sup>th</sup> to the 23<sup>rd</sup>, 2012. Discussions of 'What next?' began on the trip home from their recent TJ9PF operation, with other options set aside due to security problems or expense. **Bonaire** was chosen for the ease of getting gear in and out and the welcoming environment for the multinational operators. Peter PJ4NX has been helping make the arrangements. The group's goal is 80,000 contacts in 11 days of operating and 'maybe get the RTTY world record.' They will be on SSB, CW and RTTY with six stations 24 hours a day. Operators signed on are F4AJQ, PJ4NX, K4SV, I2VGW, N2WB, DJ7JC, DJ9RR, OE3GCU, OE3JAG, ON7RN, F1HRE, F1NGP, F4DLM, F5EOT, F5VHQ, F6BIV, F6ENO, F6JMT, F8BJI, F9IE, PA0R, OZ1IKY, F2VX, F5QF and F8ATS. The team leaders are Franck F4AJQ and Seb F5UXF.

Arnauld F4FOO - 5V7MA will be active, in his free time, from December 19<sup>th</sup> to January 4<sup>th</sup> with the call 5V7MA from **Togo**. He plans to be QRV 20-10 m SSB only. QSL to his home call.



Photo 3: Tony G0OPB explaining the rig to David G3UNA, Clive G3POI and Bob N6OX, with his back to the camera. Photo by Justin G4TSH.

Phil F4EGS is back in **Ndjamena, Chad** and QRV as TT8PK, until December 23<sup>rd</sup>. He will be active in his spare time. QSL via F4EGS.

Wayne K8LEE says he will be in PJ2 from October 19 to December 13 and his 'main goal' is to run RTTY almost 100%. During the CQWW Phone and CW contests he will share the station with others that do not get as much chair time as he does. So, RTTY will be less in those periods.

Retu OH4MDY will again be active from **Vietnam**. Look for him between November 1 and December 12 on 80-6 m on CW/SSB. QSL direct only to home call with SAE and US\$2. Log will be on-line at: <http://www.clublog.org>

Oleg UT0EA says Valery UA0QV has obtained a new licence to operate until mid-2012. He will be active on CW/SSB/RTTY on 40-10 and if possible will put up an antenna for 80. QSL to home call, direct, bureau or use LoTW.

Phil Ward F6GNT has been on **Maryotte Island** since August 1<sup>st</sup> and is expected to remain there until March 1<sup>st</sup>, 2013. He has recently obtained his FH8NX callsign and has been QRV. He is using an IC-746PRO running 100 watts into a multi-band dipole up 25 metres. Look for Phil on 20 through 10 metres on SSB. QSL direct to his call book address <http://www.qrz.com/db/fh8nx> or via e-QSL.

Look for WA4DAN/CY0, AA4VK/CY0 and N1SNB/CY0 on **Sable Island** from December 28, 2011 to January 6, 2012. The team will use the [www.CY0dxpedition.com](http://www.CY0dxpedition.com) website.

Nine operators from Germany (DF1AL, DJ9HX, DJ9RR, DK1AX, DK1MA, DL2HWA, DL7JAN, DL7VEE and DM2AYO) will be active as ZK2C, **Niue** (OC-040) on 3<sup>rd</sup> to the 17<sup>th</sup> February, 2012. They will operate CW, SSB and RTTY on 160-6 metres with three stations.

QSL via DL7JAN, direct or bureau. Further information, including suggested frequencies, log search and the OQRS for both direct and bureau cards, can be found at <http://zk2c.hkmann.de/>

Hans OE3NHW is again back in **Peru** until March, 2012. He has been QRV as OA6/OE3NHW. He is running a TS-480HX into either a Spiderbeam or G5RV. QSL via OE3NHW.

Shin JA2PSV has been in Bhutan since late September and will be there until September, 2013. In his spare time he has been QRV as A52SV. He plans to be QRV on 15, 12 and 10 metres on CW, SSB, RTTY and PSK using an FT-450D running 100 watts into a vertical wire whip. QSL via JA2PSV and LoTW.

**The Republic of South Sudan** was recently added to the DXCC entities list, so each QSO confirmed by their manager (EA5RM) will be the confirmation of a new one. As you may know, the distribution of the STØR QSL cards has begun. Because of this, the DXCC desk has

expressed concern that they may be overwhelmed by thousands of applications to credit the new entity.

Consequently, the STØR team have decided to make a change to their previously announced plans for LoTW. They will upload to the LoTW all individual donor QSO and all QSL requests submitted via their on-line QSL request system on November 1, 2011.

Bill Moore NC1L released the following: Special 'paper application offer' procedure for STØR QSLs – please read carefully.

The cards for the 2011 STØR operation from the new DXCC entity of South Sudan are now being received by DXers around the world. With next year's publishing deadline of 31 December, 2011 fast approaching, we will offer a special, reduced-price option for those DXCC participants who have already made at least one application during 2011.

You MUST have already made a submission in the 2011 calendar year via either LoTW or via a traditional,

paper application. If you have made an application already in 2011, then you may submit a paper STØR QSL (no other cards, just the STØR South Sudan card) following these rules:

Enclose \$6.00 (check, money order, CC#, or cash at your risk) for non-USA amateurs;

Enclose an SASE for the return of the STØR card;

This special submission is ONLY for the STØR card; if ANY other card(s) are included this will be considered a full submission subject to full fees, even if you already submitted in 2011.

And finally, Season's Greetings to all and good luck in the pile-ups.

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (I1JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailyydx.com/trial.htm](http://www.dailyydx.com/trial.htm)



# The 2011 VK9HR DXpedition to Lord Howe Island

John Chalkiarakis VK3YP

Planning by the Hellenic Amateur Radio Association of Australia for the DXpedition to Lord Howe Island (OC-004) between 23 July and 2 August, 2011 began in February, 2011. The VK9HR (Hellenic Radio) callsign was issued on 6 April, 2011 by the Australian Communications and Media Authority (ACMA).

Team Leader Tommy Horozakis VK2IR (HARAOA President) and Co-Leader John Chalkiarakis VK3YP (HARAOA Treasurer) began the long process of organising all the equipment, antennas and logistics. The aim was to put together an international team including VKs and thus we were delighted to have David EB7DX as the QSL Manager and webmaster for VK9HR. David

EB7DX was most recently the QSL Manager for the very successful 4A4A Revillagigedo Archipelago DXpedition in March, 2011.

All the equipment was shipped from Australia to Lord Howe Island using both sea freight (boat) for the antennas and ancillary equipment, and air freight for the HF radios and amplifiers in the week prior to the start of the DXpedition.

The entire VK9HR team, comprising of Tommy VK2IR, John VK3YP, Peter VK2NN, Bruce VK2KLM, Raffy VK2RF, Ed G8GLM, Don N4HH, Les W2LK, Saul K2XA and Alex OZ7AM all met at Sydney Airport for the flight to Lord Howe Island on the morning of Saturday, 23 July, 2011.

The team arrived safely at Lord Howe Island late afternoon and we began the task of setting up the stations. We managed to get the Steppir BigIR vertical installed that afternoon before dark so we could begin making contacts. Early next morning and the remainder of Sunday were spent setting up all the antennas from 160 m to 6 m, and that were located at two separate sites. By the evening we had everything set up and although everyone was very tired, we finally had all six HF stations operational.

Our many antennas were:

- 160 m inverted L using a Spiderbeam 18 m fibreglass mast and a 200 metre long receive Beverage.



The VK9HR DXpedition team, comprising (from left to right) John Chalkiarakis VK3YP, Peter Garoufalos VK2NN, Ed Durrant VK2ARE, Les Kalmus W2LK, Ratty Shammay VK2RF, Tommy Horozakis VK2IR, Bruce MacDonald VK2KLM, Saul Abrams K2XA, Don Nesbitt N4HH and Alex Rosenmeier OZ7AM.

- 80 m - 1/4 wave vertical and also a 1/2 wave dipole.
- 40 m - 2 element Moxon beam and also a 1/4 wave vertical.
- 30 m - Steppir BigIR vertical (additionally covering 80 m - 6 m as well).
- 20 m - 3 element Yagi.
- 17 m - 2 element Moxon.
- 15 m - 3 element Yagi.
- 12 m - 2 element Moxon.
- 10 m - 3 element Yagi.
- 6 m - 3 element Yagi.

All the antennas performed very well with the 160 m vertical (located close to the water) performing exceptionally well with strong signals into NA, JA and VK.

For the first few days the band conditions were not the best, with the SFI around the 80s, but then slowly started to climb above 100 and the bands became alive with massive openings on 20 m, 17 m, 15 m and even 12 m. We also had an opening on 10 m and even a couple of contacts on 6 m.

Our six HF radios comprising of 3 x Kenwood TS-590S, 2 x Yaesu FT-857s and an Icom IC-7000 were all connected via CAT and digital

interfaces (built in USB port on the TS-590S) to N1MM for logging and also DM-780 for RTTY. We used three SPE amplifiers comprising of 2 x SPE-1K-FA and 1 x SPE-2K-FA and also 3 x RM-ITALY HLA-300V amplifiers. The Kenwood TS-590S radios performed exceptionally well with our CW operator Alex OZ7AM commenting that he had previously used an Elecraft K3 on CW and he could not pick any difference in performance on CW between the K3 and the TS-590S. Our SPE amplifiers were also a stand out in performance – all running nearly 24 hours a day and not missing a beat.

In the pileups, the North American and JA discipline was excellent. The European discipline was mostly very good, as is often heard with DXpedition stations, and there was minimal jamming activity.

The RSGB IOTA contest was also entered on the weekend of 30-31 July using the callsign of VK9IR, thus allowing our other stations to continue operating as VK9HR on the other bands. Almost 2,000 contacts and 12,153 contest points was realised for the IOTA contest.

The cost for this DXpedition was over \$25,000. Many thanks go to the sponsors (including many

personal contributors) who assisted in offsetting some of these costs.

The corporate sponsor list included RF Solutions, SPE, SteppIR, Kenwood, Spiderbeam, The Pest Control Company, Ham Radio Outlet, ATRC, Begali, Island Connection and Tower Tees.

The DX Foundation sponsor list included Nippon DX, Danish DX Group, EUDXF, German DX Foundation, SEDXC, HVCDX, Chiltern DX Club, MDXC, Clipperton DX Club and Swiss DX Foundation.

Great planning, great operators and a lot of hard work prior to and during the DXpedition and many operating hours by the team realised some 17,000 contacts during a seven day operating period. A special thanks to our CW operators Alex OZ7AM, Don N4HH, Les W2LK and Saul K2XA.

All QSLing for this expedition is via EB7DX.

To all the VK9HR team and most importantly our corporate and DX foundation sponsors we thank you. Stay tuned for another HARAOA DXpedition in 2012.

# Silent Key

Keith Malcolm, VK1KM

Amateur radio has lost one of its finest.

Keith Malcolm VK1KM passed away suddenly on Thursday 13 October. His direct and indirect contribution to our hobby has been great, and his loss will be deeply felt.

Keith was born in Manchester, England, in 1948. He spent the first 10 years of his life there before his family migrated to Australia in October, 1958. He retained his affection for the old country – and his accent – for the rest of his life. The family settled in Melbourne and prospered, moving into their own home in Clayton in 1964. Keith established his first radio shack in a shed at the bottom of the yard. He studied engineering and qualified as a communications engineer. It was not long before he joined the Public Service in the Bureau of Meteorology, where among other things he worked on receiving systems for weather satellites. He then moved to the Australian Broadcasting Control Board, and next to the Telecom Broadcasting Branch. Here he worked on spectrum management, and experimental and development work relating to broadcast services. He remained in the field throughout his professional life.

Keith was licensed as VK3ZYK in 1967. His interest was primarily in VHF propagation, and for years he was a member of the WIA's VK3 VHF group. He soon took on the role of Secretary of this group, and served this way for many years before he was elected as its President in 1975. At this time the VHF group was large and very active, and organized events such as field days, fox hunts, conventions and scrambles, and these events often included wives and girlfriends. Keith was a keen contributor. He was also involved with the WICEN organization.

He was married in 1974.

Over time, broadcasting control underwent numerous changes in its administrative arrangements. In the late 1980s it was incorporated into the Department of Transport and Communications. Keith's career was all the while advancing, and his expertise in radio frequency management in the global context was growing rapidly.

Keith and his family moved from Melbourne to Canberra in 1986, as a result of the relocation of his Department's head office. He was soon appointed as the Joint Director of the Federal Government's Communications Laboratory. Here he did some of his finest work. Under his direction, the laboratory covered the full gamut of broadcast engineering work. This included deep involvement in planning the digital TV services in this country and among other things the selection of the most appropriate transmission standard for Australian conditions. Detailed technical analysis was needed to compare the competing American and European systems, and in the end the European system was recommended. Other important issues for which he was ultimately responsible included development of the home satellite TV system (HACBSS) to bring TV to the bush, and evaluation of HD TV systems.

As joint director of the Communications Laboratory, Keith was a member of several high level overseas delegations representing Australian interests to the CCIR and the ITU. He travelled widely during this period.

On transferring to Canberra, Keith was first VK1ZKM, and later VK1KM.

Keith took an early retirement in 2000, and started work as a Consulting Engineer, accepting commissions from his old employer, including among other projects the TV black spot problem, and from the ABC, concerning interference from BPL systems.

After his retirement Keith participated in the preparation for WRC 03 representing the WIA. That ITU World Radiocommunication Conference was of particular significance for amateur with an agenda that proposed the extension of the 40 metre band in Regions 1 and 3 and a complete review of Article 25, the part of the Radio Regulations relating to the amateur services.

Keith spent four intensive and exhausting weeks in Geneva as a member of the Australian delegation, with David Wardlaw, representing the amateur services.

A task of lasting importance to amateurs was the preparation in 2005 of an ACA document setting out guidelines which amateur radio operators may use to assess the compliance of their stations with the EMR guidelines. This document was prepared jointly by Keith Malcolm and Gilbert Hughes, and simplifies a complex problem very well.

Keith was awarded the WIA's Ron Wilkinson Achievement Award in 2005. This was especially in recognition of his contribution to the WIA effort for the WRC 2003 Conference, but the citation also recognized his contribution to the WIA preparation for the then forthcoming 2007 conference.

Again he was a member of the Australian delegation to WRC-07, again nominated by the WIA to spend another four weeks in Geneva.

A surprising side-line in Keith's interests was his love of railways. He was widely travelled overseas, and this allowed him to indulge his pleasure of taking classic rail journeys in odd places. He was a senior member of the Australian Railway Historical Society, and was licensed first as a steam locomotive fireman, and later as an engine driver. He was an active member of the ARHS, and contributed to their activities in many ways from ticket selling to cleaning, painting, and repairing rolling stock, to driving trains. They called him Mr Fixit for his talent for fixing technical problems, and he also undertook restoration work on two of the society's steam locos and their "Tin Hare" rail motor.

After his retirement, Keith bought a large block of land outside Murrumbateman, about 40 km NW of Canberra. His intention was to build a home there using his own labour, and he worked steadily on this project for years. He moved in about three years ago, and the house is now virtually complete. The quality of Keith's work is excellent.

Keith was an unassuming man, but he possessed a powerful brain and great knowledge in several fields. He had the ability to cut through intellectual clutter to get to the core of an issue, and was able to explain complex issues in a readily understood way.

He will be sorely missed by his many friends and colleagues.

Keith is survived by his XYL Lesley, three adult children, and one grandchild.

**Vale Keith Malcolm.**

Prepared by Ian Cowan VK1BG, with the assistance of numerous of Keith's friends.

# VK6news

John Ferrington VK6HZ  
vk6hz@wia.org.au

Season's Greetings! Another year has passed by; another circle round the sun...at least the sun now has some sunspots!

As I sit here typing, I am trying to recover from the CQ WW SSB contest, CHOGM and a visit from the Queen. I hope that many of you managed to work VI6CHOGM whilst they were active for the three days during CHOGM. Luckily for us here in VK6 Friday, 28 October was a public holiday, so it gave us a few extra hours to play radio. We were also given the opportunity to use the VI6 prefix to celebrate CHOGM.

The CQ WW has now passed for another year, and I am sure my friend Phil VK4BAA will provide all with a complete update shortly. I have seen and heard of some very large, perhaps record breaking, scores from both VK4 and VK6. NCRG operated as VI6NC in M/2 mode and managed a great score. A big thank you must go to Chris VK3FY who managed to sit in the chair for a few hours on Saturday night to help the contest crew. Conditions were great. I even managed to work some 500 contacts on 10 m over the weekend as VI6XX.

In the coming weeks the NCRG shack will be used by Bernd VK2IA/VK6AA for the CQ WW CW contest. We wish him luck in the contest. Bernd is one of the best CW operators I have had the privilege to meet. He is pure poetry when he gets going.

Not much more from VK6 this month. I hope Santa is generous to you and that you have a safe holiday period. If you have anything for the VK6news, please email it to me, at [vk6hz@wia.org.au](mailto:vk6hz@wia.org.au)

73 for now, John de VK6HZ.



## Hunter Radio Group catches up with Jeff Johnson VK4XJJ in Newcastle

Grahame O'Brien VK2FA



Photo 1: Grahame O'Brien VK2FA and Jeff Johnson VK4XJJ.

Photo 1 was taken on Saturday, 22 October, and shows Grahame VK2FA presenting a cheque to Jeff Johnson VK4XJJ at the foreshore of Newcastle Harbour.

The money was collected at The Hunter Radio Group's October meeting, where they passed the hat around to make a donation to Jeff's charity, NETS, the charity Jeff supported on his last walk across Australia.

NETS, the Newborn Emergency Transport Service is a wonderful transport service that transports very sick babies to specialist care at major hospitals. To put it more

bluntly, NETS helps save baby's lives and we never know when one of our family members may need this service.

I would like to send a challenge to all radio clubs across Australia to do the same as the Hunter Radio Group has done and forward a donation to NETS <http://www.nets.org.au/>

On the day both photos were taken, there was also a meeting of three Australian adventurers. There was Jeff, the 70 year old gentleman we all know and at the other end of the spectrum there were two gentleman in their twenties who started off in Turkey then going through 38 countries on quad bikes (they called themselves the Quad Squad <http://quadsquad.org/expedition.html>), including the UK, Sahara Desert, Africa and then on into Australia to complete their adventure in Sydney. This team started off as a team of three, but unfortunately one of them was killed in an accident along the way. As a mark of respect to their colleague they decided that they would

continue the adventure in memory of their friend.

Jeff met these adventurers in Laverton, Western Australia, and they agreed to meet in Newcastle where there was going to be a Guard of Honour of motorcyclists for the last 160 kilometre ride to Sydney. As the parade left Newcastle, Jeff shook their hands and wished them good luck for the rest of the trip and a parade of hundreds of motorcycles left the foreshore on the rest of their journey to Sydney.



Photo 2: Kristopher 'Ted' Davant, Jeff Johnson VK4XJJ, Brian 'Bear' Mooney, Jeff's support driver and James Kenyon.

# VK3news Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

## The ACMA

Nik VK3BA invited Mark Tell VK3XMT from the ACMA to give the club an 'educational' presentation on the Field Operation Section activities.

Mark's presentation was geared around a PowerPoint presentation that lasted for a highly informative 2.5 hours to a full house, standing room only, audience comprising the GARC members, guests from the GRES and visitors from VK5 land.

The Field Operations Section has some 32 staff covering Australia with six offices; three in NSW and one each in Tasmania, Victoria and Queensland. The section relies on centralised reporting and coordination in dealing with around 70 calls a week Australia wide. Their remit is dealing with interference to telecommunications services up to 45 GHz.

Of their 27 monitoring sites only three actually deal with the HF bands. The ACMA's primary High Frequency Monitoring and Investigation facility



Mark Tell VK3XMT.

is located on a 50 hectare radio quiet site at Quoin Ridge, Tasmania and is rated a world class facility.

It houses the organisation's Field Operations Hobart office, and is an ITU accredited facility operating the ACMA's HF direction finding network of sites which are located throughout Australia and service around one third of the world.

The ACMA's approach to dealing with those responsible for

creating interference problems starts with education and several other notification steps before issuing infringement notices and fines/confiscation of equipment. Any equipment confiscated is crushed by the authority. Problems caused by the amateur fraternity account for a very small percentage of their overall activities; conversely the erection of a tower by an amateur has the inevitable effect of raising received complaints against amateurs ranging from causation of a variety of medical issues to poor television reception!

## The GARC club house makeover

With the re-roofing and guttering completed the focus has now changed to improvements to furniture and fittings. The first phase of which was the purchase of three new settees to replace existing 'tired' units along with a new book case and replacement computer desk.



## NZART CONFERENCE 2012

IN HAMTASTIC NELSON - BIRTHPLACE OF ERNEST RUTHERFORD

QUEENS BIRTHDAY WEEKEND 1<sup>st</sup> – 4<sup>th</sup> JUNE 2012

Tahuna Beach Conference Centre, Nelson- Tahuna Beach Holiday Park

Thinking of a break in New Zealand?

NZART says "It would be great to see some of our fellow amateurs from Australia and if you are interested in coming to the conference we would love to see you here in Sunny Nelson."

Please contact: Secretary ZL2LS Topsy Scott: [scott@tasman.net](mailto:scott@tasman.net)

# Darcy Hancock VK5RJ

Ian Sutcliffe VK5IS



Photo 1: Darcy Hancock VK5RJ, 100 years young, with his new TS-590.

Darcy was born in Kadina, South Australia on 18 December, 1910, making him 101 years old in December this year.

He gained his amateur licence at the Kadina Post Office in July 1927 and has been on the air ever since. He remembers the first wireless to

come to Kadina's local electrical shop. In those days everyone would come down to the shop to listen to one of the few broadcast stations on the air, 2FC Sydney. Darcy said the reception was more static and crackle than radio but everyone was mesmerized by the marvellous new technology.

He said, 'In those days you built everything yourself'. Darcy talks

fondly of the early days of amateur radio when friends and neighbours would bring over their 78 records for him to play on the air. He had built his own magnetic 'pick up' so he could reproduce the records electronically resulting in high quality broadcasting of the music.

Darcy is a very accomplished musician and he played throughout Yorke Peninsula with dance band 'The Rhythm Kings'. In later times, after moving to Adelaide, he played his saxophone in a band with pianist Ray Carney for many years. This was much loved by the dance goers of the time.

Darcy is still active on the bands making regular daily contacts with his son Bruce VK5TRJ, his grandson Ian VK5LRJ and long-time friends Ian VK5VJ and Ian VK5IS, and also with Lyn VK4SWE and Harold VK4ANR on Sundays.

He uses his computer for emails and web surfing and to preserve photos and record his treasured jazz music. He has just purchased a TS-590 which he is now using on the air. Pretty good effort all round for a ham one hundred and one years of age. Well done Darcy!

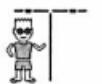


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*As always, you can get a free catalogue - just call!*

# Centre Victoria RadioFest No. 5

## Sunday 12 February - Kyneton Racecourse

### THE BIGGEST RADIO EVENT IN VICTORIA

The place to pick up a bargain at the Traders Hall supported by all the major traders or at the second-hand market place whether it be at the tables or carboot lots.

Socialise, see, learn and enjoy. This is a family friendly event where you can have a picnic and relax.



### Check out this great program

- ✓ Australia's first look at home-brewing a DVB-S ATV Transmitter. The poor man's entry into the enthralling world of digital television by Ross Pittard VK3CE
- ✓ The ZL6QU Super Station at Quartz Hill by its Chair of Committee 1997-2011 and avid contester, Brian Miller VK3MI/ZL1AZE
- ✓ Tracking down that interference! An interesting insight delivered on this very important activity from Mark Tell of the ACMA

### DISPLAYS AND ACTIVITIES

- EmComm ready to serve in our name
- F-Troop photo call of Foundation licensees
- Bendigo District Astronomical Society
- Scout radio display
- Historical radio on show
- CQ Awards QSL checking with VK3PA
- Special interest group meetings

More details listen to the VK1WIA broadcast or check out the website

The program advertised reflects what is proposed at this time and may be subject to change.

#### Second-hand market and car-boot sales

Bookings of tables and car-boot space close soon. These are low cost and include one entry ticket. An application form and conditions on the website (see below) or contact Tony Hambling VK3VTH 0423 635 152

**Catering:** Hot and cold food and drinks will be catered by the Kyneton CFA Auxiliary. Hot breakfast is available from 9am. Free tea and coffee available all day. Or bring your own lunch to enjoy in picnic style.

**Entry tickets \$10:** On sale from 9am with the gates opening at 10am. Free entry to children aged under 13. No pets or alcohol. The venue is mostly under cover suited for all weather.

**Door prizes:** Entry tickets will be drawn for the winners of available door prizes.

**Venue:** Kyneton Racecourse, Campaspe Place (off Beauchamp St), Kyneton, Only 50 minutes from Melbourne and an hour from Ballarat and Bendigo. Plenty of free parking.

**Info and talk-in:** Mt Macedon 2m repeater VK3RMM 147.250MHz from 7.30am to 10.30am on the day.

**Email:** [radiofest@amateururadio.com.au](mailto:radiofest@amateururadio.com.au)

**Website:** [radiofest.amateururadio.com.au](http://radiofest.amateururadio.com.au)

Don't miss this major event and great social occasion for everyone with an interest in radio communications. Ready to help you maximise your participation are volunteers from **Amateur Radio Victoria** and the **Central Goldfields Amateur Radio Club**.

# VK5news AHARS

Christine Taylor VK5CTY



AHARS members at their latest construction night.

The October meeting of AHARS was a construction night. It is great to see all the different sorts of equipment the members bring to these construction nights. Most of them have lamps and there are lots of magnifiers in use. Most of the constructors do manage to complete the projects. Graham VK5ZFZ, who provides the parts, also brings along a method of testing the finished project.

This time it was an interface that, for those that participate in a program of training sessions next year, will be used at that time. The training sessions are all about PICAXE chips, with a follow up program about PIC chips. It should be very worthwhile.

AHARS did participate in JOTA at the new Shack but as JOTA fell at the end of the school holidays in this state the participation was low. David VK5KC, Hans VK5YX, Frank VK5BF and Patrick VK5MPJ had just five Guides visit them. They did have some contacts, though, and the five girls enjoyed the experience. We all hope next year will see a bigger participation.

The shack is being used as a meeting place each Saturday morning, with a breakfast once a month. A session of training and exams has been held and more are planned for the New Year.

A group of the members went to the archives of the ABC to hear and see some tapes held there. This was enjoyed by those that attended and may lead to more of the same in the future.

Our regular meetings are held on the third Thursday of each month in the Blackwood Community Hall, except for the months of December and January. If you are visiting Adelaide just get in touch with the President, David VK5KC or the Secretary Sue VK5AYL, both QTHR the callbook.

Don't forget the AHARS BUY AND SELL on November 20th - a Sunday - to be held at the Goodwood Community Hall in Rosa Street, Goodwood. Doors open at 9.00 am into the commercial seller's hall and at 9.30 am into the general selling hall. Come along and meet your friends and look for the bargains. You can always find that special item here.

The committee and members of AHARS wish everyone a Merry Christmas and a Happy New Year. May Father Christmas bring you that special present.

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# Foundation Corner 17:

## Basic digital communication or The Diddly Dah's

Ross Pittard VK3CE  
vk3ce@amateurradio.com.au



Figure 1: The International Morse Code.

Everyone is talking about going digital these days, including the local TV and radio stations, your phone company and even the local newspaper. It all sounds very exciting and complicated but broken down into its basic fundamentals digital communication is the transfer of two states, logic one and logic zero. These can be represented by two voltage levels, that is, 0 volts and five volts; or light on and light off; or perhaps carrier on and carrier off.

One of the first forms of long distance communications was of course the Morse code, originally developed by Samuel F. B. Morse for use on his electric telegraph in the early 1840s, refer Figure 1. In the 1890s, it began to be extensively used for early radio communication, before it was possible to transmit the human voice.

For the Foundation operator this is perhaps the simplest and most efficient method of radio contact particularly at the power levels allowed under their licence. Looking at the Band Plans (Foundation Manual, page 86) we can see a section devoted to the exclusive use of Morse code at the bottom of each amateur band, called the Continuous Wave section.



Figure 4: A paddle style key.

Morse code was originally a part of the amateur licence requirement, but for a number of years has not been compulsory for any grade of licence in Australia. There are still a small number of dedicated operators regularly using

the code for communication; try having a listen during the evening and I am sure you will hear plenty of stations working CW around the world.

For those interested in the Morse code there are a number of PC based programs which make it a simple matter to learn the code; one I would recommend is called 'Just Learn Morse Code', refer Reference 1. A word of advice, NEVER try sending on a key until you are fluent in receiving. The best approach I found to learning the code is the Farnsworth method (supported by this program); this is where

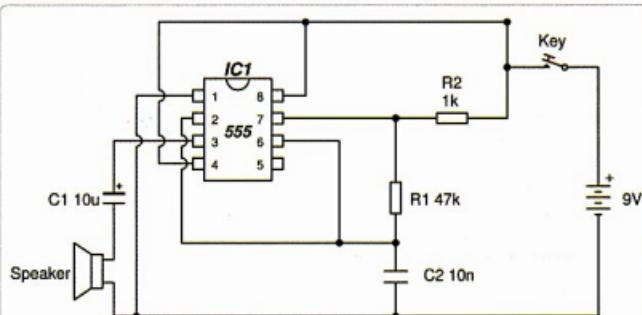


Figure 2: A simple Morse code oscillator circuit.



Figure 3: Hi-Mound & Clipsal keys.

characters are sent at higher speeds, while extra spacing is inserted between characters and words to slow the transmission down. The advantage of this is that you get used to recognising characters at a higher speed, and thus it is easier to increase overall speed later on. The whole idea is to learn the sound of the letter not the letter as dots

DB9 Male

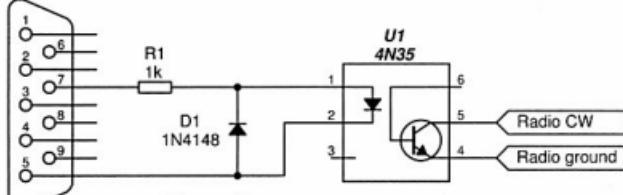


Figure 5

Figure 5: A CW Opto-isolator circuit.

and dashes. After you have tried the program see if your local club has an experienced Morse operator who I am sure will give you some expert advice.

I have included a small circuit for a Morse practice oscillator in Figure 2 for anyone wanting to practice sending the code. It is easy to build on a small piece of Vero strip board and is based on the very popular 555 timer IC, and needs in addition two capacitors, two resistors, a speaker and battery.

Morse keys can be purchased new from ham suppliers or can usually be found at swap meets; a popular key is the 'Clipsal', shown in Figure 3, used by the Post Office during the heyday of telegrams. Many ham shacks will have one of these tucked away in the cupboard; also pictured is a modern 'Hi-Mound' key available new from selected dealers.

Many modern radios have a 'paddle' input as well as a key input. The difference being a paddle

style key, shown in Figure 4, has a horizontal action one direction to produce a dot and the opposite produces a dash. The advantage in using a paddle is that the dot and dash are generated by the radio and are always at the correct length (a dash is three dots long).

When calling CQ it is sometimes handy to use an automatically generated message and a handy little program called CWType, refer Reference 2, can be used to store a number of pre-programmed messages: just the shot for contests and poor propagation. I have included a small circuit, seen in Figures 5 and 6, which can be made on strip board (from Jaycar) or it can be just built piggyback style on the rear of the DB9 connector. It is built around what is called an optocoupler which provides electrical isolation between the PC earth and the radios RF earth. The unit is plugged into the selected com port and will key your radio.

The program will transmit Morse code from pre programmed sequences, the PC keyboard, or from a paddle connected to the game or printer port.

As with all types of amateur radio activity do not be afraid to try Morse; all experienced operators will adjust their send speed to suit the speed you are sending at, so give it a go! There is, as with most specialist modes, a club for Morse operators called the 'FISTS', refer to Reference 3. The following information was gleaned from their web site and I am sure they would welcome new Foundation members.

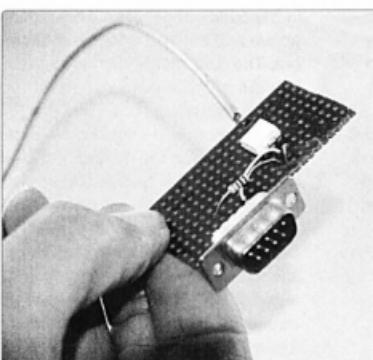


Figure 6: The assembled CW Opto-isolator.

## History of the FISTS Club

The FISTS Club, (International Morse Preservation Society) was founded in 1987 by Geo Longden G3ZQS of Darwen, Lancashire, England, after recognising a need for a club in which veteran operators would help newcomers and less-experienced operators learn and improve CW proficiency. During the first year, membership reached 300, most of who were in Great Britain and Europe.

The North American chapter was formed in 1990 to assist 11 members in the USA receive the newsletter and as a banking convenience. Nancy Kott WZ8C of Hadley, Michigan was named US representative, a position she still holds but she now handles the affairs of over 2,000 members in the Americas.

The New Zealand/Australia Chapter was formed in 1998 to provide a similar service to Australasian members, with Ralph Sutton ZL2AOH as the VK/ZL representative. From a VK/ZL membership of four, there are now over 70 members 'Down Under', principally in New Zealand. The New Zealand membership is the largest in any country outside England and Wales and North America.

Worldwide, FISTS members now number over 4500 members, growing by up to 100 each month.

The FISTS Club is one of amateur radio's fastest growing organisations. It is a unique club, founded and maintained on solid principles using radio's oldest and yet most reliable communications mode - CW!

## Jaycar Parts List

DB9 Male	PP-0800
4N25/35 Opto Coupler	ZD-1928
Vero Strip Board	HP-9540
LM555	ZL-3555

## References

- [1. \*http://www.justlearnmorsecode.com/\*](http://www.justlearnmorsecode.com/)
- [2. \*http://www.dxsoft.com/en/products/cwtype/\*](http://www.dxsoft.com/en/products/cwtype/)
- [3. \*http://www.fistsdownunder.org/\*](http://www.fistsdownunder.org/)

# Can't you hear me calling?

Bill Isdale VK4IS

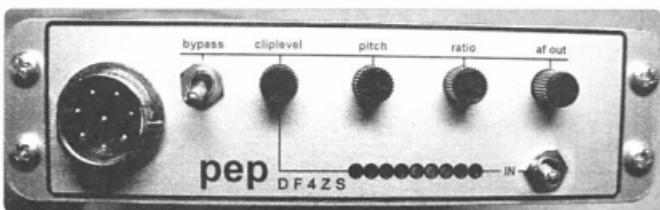


Photo 1: The DF4ZS speech processor.

At present, the most common output power of an amateur transceiver is 100 watts. A quick glance at a price list shows us that it is expensive to introduce a linear amplifier to increase output power to the 400 watt limit which applies in this country except where special permission is obtained. We are all conscious of the need to avoid interference to others and to ensure that the emissions from our station cannot pose any health risk to anyone. At the same time we will be aware that when operating a digital mode such as PSK-31 worldwide contacts can be made with about 25 watts.

It is mostly when operating on SSB that we feel the need to have more power in order to be heard above the background noise. Partly this is due to the greater bandwidth needed for voice signals, typically about 2.4 kHz, so that when listening to the wider channel we hear more of the noise that is out there. Additionally, the human voice is made up of such a wide range of frequencies and loudness that while 100 watts is the peak power available and is frequently reached for some sounds, the average power put out on SSB to carry a voice signal may well be about a quarter of that. Using a transmitter for a digital mode will heat it up more at 25 watts, in my experience, than using the same transmitter set for 100 watts on SSB. This is simply because the digital mode is steadily delivering the set power level when transmitting while on SSB the average power is unlikely

to reach that level, though it briefly touches 100 watts. It is the steady power that challenges the heat sink's ability to dissipate the heat from the output transistors.

It is possible to get higher average output from a transmitter and so make more use of its potential. In doing so it must be recognised that this will put a greater load on the device and may ultimately shorten its life. If any change is approached with an eye to ensuring that adequate cooling is maintained, the reduction in ultimate lifespan of the equipment may be negligible, particularly since most amateur transmitters will spend most of the time switched off and become obsolete before they ever wear out.

Better use can be made of the transmitter's power if the average output on SSB can be increased. This can be achieved by a speech processor. Anyone who listens to the sounds coming out of a television set or broadcast band radio receiver will soon notice that the advertisements are louder than the programme they are interjected into. This is achieved by processing the sound to raise its average level in the frequencies to which the human ear is most sensitive. The lowest and highest frequencies can be blocked, the energy peaks limited and then the sound amplified until the fainter sounds are much stronger. What goes to the transmitter is then a concentrated sound that arrives seeming louder than might be expected.

The perils of this are that manipulating sound will produce

distortion and harmonics. Some of the harmonics would be in the audible range and the overall result will become unpleasant if too much processing is attempted.

The simplest end of speech processing is the 'power microphone' which was developed to help boost the apparent power of CB operators. Simply an audio amplifier, it is useful for ensuring that a good signal makes it from the microphone to the transmitter. Crank it up too far and the sound will deteriorate (and the transmitted signal will become very broad, causing interference to operators on adjacent frequencies. Ed).

Many of the transceivers we use today boast of having a speech processor. A few moments spent studying the circuit diagram will allow us to see what it is actually doing. My Yaesu FT-857D has a speech processor which is actually an audio amplifier; it works well but the name given to it tends to create the impression of something more complex.

The next step is audio speech processing, which may be built into the radio or added as an accessory. This manipulates sound at audio frequencies and can perform well. A limitation is that because speech is a blend of frequencies predominantly between 300 and 3000 Hz, processing will be sure to create harmonics which are themselves still in the audio range, even if everything above and below this range is filtered out. The distortion will grow as the amount of processing increases. Good audio design can keep this to a minimum and some competent products are on the market, not least among which will be those used by broadcasters.

A higher level of effectiveness can be achieved by radio frequency speech processing. The incoming audio can be converted to a radio frequency; the availability of parts makes it easy to use a frequency like 455 kHz. The processing is

performed at this frequency so that unwanted products are at radio frequencies. They are then filtered off and the remaining signal down-converted back to audio which is then fed to the transmitter. This requires the processor to be between the microphone and the input socket on the transceiver. If this method is employed it will be prudent to turn off any processing of the input inside the transmitter and leave the task to the external unit. Some of the transceivers now available have this sort of speech processor in them but an accessory can be added to any transmitter to, in effect, boost the audio of the output to a level such that the 100 watt transmitter sounds like a 400 watt transmitter, for a small fraction of the cost.

Some products are commercially available, but there are few.

One that I have tried successfully is thoughtfully designed and carefully built by Joachim DF4ZS, an amateur operator in Wilhelmshaven, Germany who will sell a built unit over the internet. He has published the circuit diagram on his website [www.jwm.de](http://www.jwm.de) so that how it is constructed and built is fully disclosed. The clipper has adjustable audio frequency compression and a noise gate so that background noises picked up by the microphone out of the voice range are excluded. Compression is adjustable from none to 9:1.

The output level is adjustable so that the transmitter's automatic level control is not overloaded. A switch allows the whole unit to be bypassed and the user can also bypass the clipper and use only audio compression and the noise gate. A low pass filter keeps audio output below 3 kHz and pitch can be adjusted.

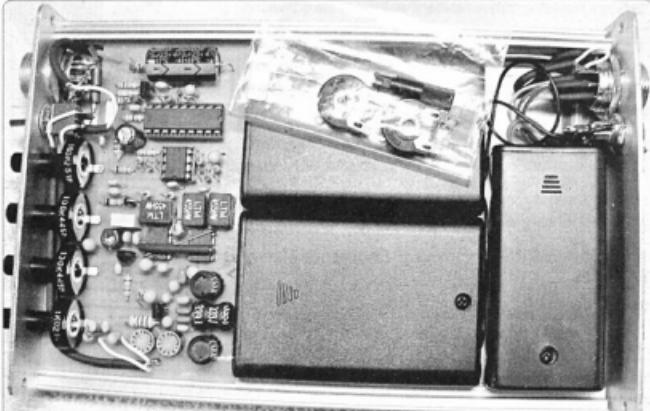
I ordered the fully built unit and it duly arrived. It is the work of a craftsman and includes some extra and spare parts which can be used to modify it, for instance to accept some microphones with lower than typical output levels.

The unit may be powered from internal 'AA' size batteries or an external power supply. I was delighted to find that the standard Yaesu lead from my desk microphone connected to the processor and another of the same leads, available as an accessory from Yaesu and which I had on hand connected from the processor to the transceiver. The wiring all matched so it was not necessary to make any leads.

Clear instructions for setting up the processor came with it and I was on the air in a minute or so. I have had good reports from stations contacted and have enhanced my station for a very reasonable price. For those with the skills, time and inclination, construction of an RF speech processor would be a very rewarding project.



*Photo 2: A view of the internal construction of the DF4ZS speech processor.*



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# VK3 news Amateur Radio Victoria

Jim Linton VK3PC  
[www.amateurradio.com.au](http://www.amateurradio.com.au)

## Season's Greetings to all

The month of December is here as we prepare for the summer holidays. On behalf of the Council - Barry Robinson VK3PV, Peter Mill VK3APO, Keith Proctor VK3FT, Terry Murphy VK3UP, Tony Hambling VK3VTH and myself, complements of the season and best wishes for a Happy New Year.

A reminder that the office at 40g Victory Boulevard, Ashburton, will close at 1 pm on Tuesday, 20 December and reopen on Tuesday, 7 February next year. During the break, urgent matters will be given priority while office-bearers work on financial statements, stocktaking and the annual audit.

The Annual General Meeting will be on Wednesday, 16 May, 2012, at 40g Victory Boulevard, Ashburton, commencing at 8 pm. Members will be sent the annual report details later. Notices of Motion for the AGM close with the Secretary at 2 pm on 14 February.

While the office is open Tuesday's 10 am to 2 pm, the work of the

organisation continues beyond those hours. Most correspondence is email although the office volunteers are kept busy with letters, phone calls, membership applications and renewals, some public inquiries, keeping the QSL bureau up to date and assisting with membership services.

May I take the opportunity to say thank you on behalf of the Council for their great work that helps the administrative side of our volunteer organisation function well.

The Internet Project Development Officer, Gary Furr VK3FX, continues to play an important role through the website. He recently trialled the sending of graphics along with text as part of the regular e-news updates. There are other team members of course, so apologies for not mentioning everyone.

## Centre Victoria RadioFest

While many take their annual break at this time, the organisers of the Centre Victoria RadioFest No. 5 will be busy as they work on the big event.

Set for the Kyneton Racecourse on Sunday, 12 February, 2012, the program is coming together nicely. From Ross Pittard VK3CE we have the first Australian demonstration of the new hardware/software alternative for generating digital television in the DVB-S format.

From the ACMA we have Mark Tell who will give an engaging presentation '*Field operations and tracking down that interference*', and a lot more.

The commercial traders are on board declaring it an event they would not miss. Bookings are also open for the ever popular second-hand market places, and Club Corner.

## Membership inquiries

To join and support the state-wide organisation Amateur Radio Victoria costs \$30 for Full or Associate membership and \$25 Concession, for two years. New members are most welcome and an application form can be found on our website or posted out on request.



# WICEN NSW Inc.

Amateur Radio Operators providing communications support to the community.



WICEN NSW Inc. is a specialist communications squad affiliated with the NSW Volunteer Rescue Association. Through this affiliation, WICEN operates as a specialist support squad under the NSW Disaster Plan (DISPLAN).

Recent activations: Newcastle & Central Coast floods in 2007 & 2009, and helping staff the communications centre receiving Offers of Assistance after the 2009 Victorian Bushfires and concurrent Queensland cyclones and floods)

WICEN also supports community fund raising events, providing support for bone-marrow transplant recipients and development in Timor; and exercises with other emergency agencies.

- Trek for Timor
- Hawkesbury Canoe Classic
- BWRS Navshield
- Endurance Horse Events
- SAREX, the search for VH-MDX
- Car Rallies

Printable membership forms and coming events are available on the WICEN NSW website. ►

Interstate? Find your local WICEN at: <http://www.wicen.org.au>

## WICEN NSW Inc.

ABN 83 747 108 984  
PO Box 535, Regents Park DC NSW 2143  
Phone: 0408 397 217  
Email: [wicen@nsw.wicen.org.au](mailto:wicen@nsw.wicen.org.au)  
Web: <http://www.nsw.wicen.org.au/>

# Modern communications technologies – A quick Centenary review and the future!

Justin Giles-Clark VK7TW

The catalyst for this article came from a presentation the author made at the WIA Centenary AGM in May, 2010 in Canberra. It was a quick crystal ball gaze on what the current developments are in amateur radio and also made some predictions along the way about the direction we might be heading.

First I would like to explore why we are involved with amateur radio, as this drives much of this development:

- We love 'novel' communications – that opening, that new mode, that impossibility! (You don't know what you don't know and you try all sorts of interesting things!).
- We try to do more with less (our Scottish ancestry!) – take the logo of the QRP CW Operators club – 'doing more with less'.
- There are intergenerational benefits through providing a self-training, development and communications environment for future electronic and communications technicians and engineers and the move to the national competency framework was an excellent one.
- Emergency communication (when all else fails – it is usually a novel



A screen shot of the PowerSDR/OpenHPSDR software in operation. Instead of touch buttons and knobs, controls are mouse click buttons and sliders. You also have panadapter waterfall displays, together with a "S meter" calibrated in dBm, not rubbery "S" units.

event well suited to amateur radio) / Event communication (community events – proves portable/mobile operation capability – field day activities and JOTA is a great example), and,

- It is all done in a not-for-profit (non-commercial), open, educative, information sharing environment.

We freely share information too – this fits really well with many of the free software development groups on the internet (GNU, etc). The amateur community has embraced the various free Unix versions – Linux, FreeBSD, etc – it fits well with the amateur philosophy of freely sharing technology.

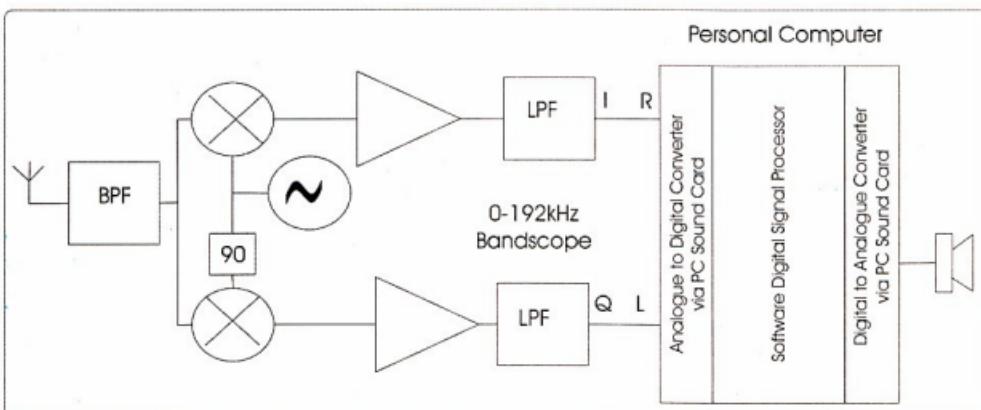


Figure 1: The architecture of the SoftRock receiver.

'Homebrewing' is slowly morphing from hardware into software. The homebrewer of the future will be a programmer using standard data signal processing (DSP) hardware and software libraries. Software Defined Radio is providing whole new areas of software 'homebrewing'! Many radio amateurs are already using Arduino, PicAXE, ATMEL, FPGAs, and the like to assist our hobby. However, one area that the author believes will remain in the hardware homebrewing domain will be antennas, with support from increasingly sophisticated software modelling tools (EZNEC, MININEC, MMANA and so on).

Many amateur radio tools (computer applications) are being developed by amateurs who work in the RF and IT engineering or technical fields and have a little fun with some AR programming on the side. A famous example is Joe Taylor K1JT – in 'real life' he is a Nobel Prize winning astrophysicist; in amateur life he develops and experiments with free weak signal WSJT, WSPR and other applications.

The four key areas of development the author would like to briefly explore are:

- Software Defined Radio (SDR).
- Narrow band - Weak signal modes.
- Internet backbone modes.
- Other notable digital modes.

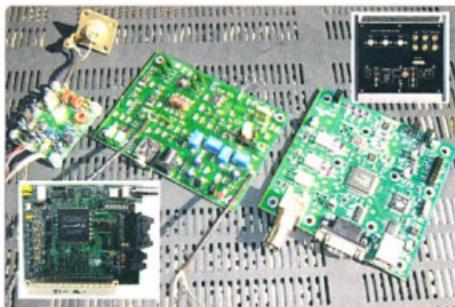
## Software Defined Radio

Currently there are two types that exist in amateur radio shacks.

The first type uses the computer soundcard as the analogue to digital (A/D – D/A) converter and the personal computer (PC) as the digital signal processor (DSP) – for example, SoftRock. If your sound card is capable of sampling at 192 kHz then you can see 192 kHz of the band and there is a SoftRock produced for each band.

One issue with this approach is the need for adjustment to allow for the temperature, component aging, etc. to get good image rejection. However, this is solved through smart pieces of software that build a dynamic picture of where the images appear on the band and can store these in EEPROM for future reference. The big advantage with this design is that it is cheap to manufacture and opens up the world of SDR to the amateur.

The second type uses directly coupled A/D (or zero IF) which minimizes analogue components and feeds the digital data through a high speed bus to the PC for DSP – Digital Down Conversion (DDC), for example, the high performance SDR (hpsdr) receiver called Mercury.

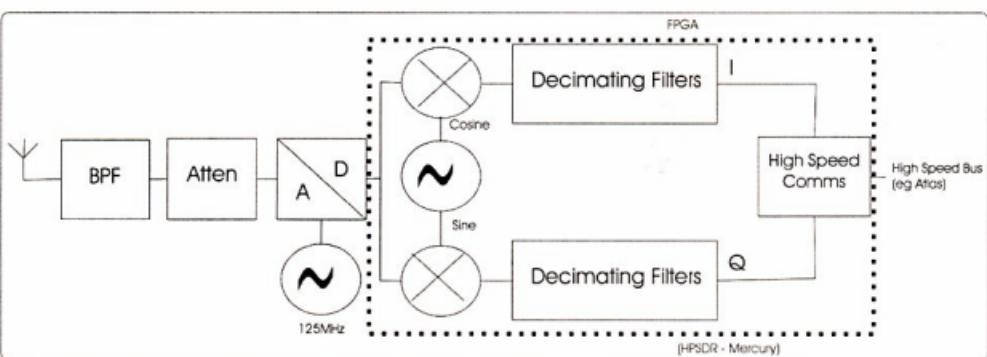


*Photo 1: Some of what is available on the SDR market today. L to R: SoftRock, Mercury (bottom left), SDRZero, RFSPACE SDR-IQ and Flex 5K (top right). The photo was sourced from the Internet and enhanced.*

DDC is used in the Mercury receiver and digital up conversion (DUC) in the transmitter (Penelope). Both use field programmable gate arrays (FPGA) which are field upgradable through firmware downloads if more effective techniques are developed. Decimation enables slower computers to be used and dynamic ranges increase three dB at each doubling of the decimation rate. The Mercury decimation rate results in about 121 dB of dynamic range.

Both SDR types can use freeware PowerSDR software which is constantly being developed and for the more software adventurer among our ranks there is the DttSP open source SDR library.

With digital signal processing you can get over the many issues with the older phasing rig designs



*Figure 2: The architecture of the hpsdr Mercury DDC receiver.*

like being able to very accurately determine amplitude and phase to reject images. For 100 dB rejection, phase has to accurate to 0.001 of a degree and amplitude accurate to 0.0001 of a dB and these are both more than possible with modern digital SDR techniques.

A big thank you and acknowledgement to Phil Harman VK6APH of the hpsdr project for much of this information. If you ever get the chance to see one of Phil's talks, take it, they are excellent. Disclaimer: The author is the proud owner of an hpsdr transceiver!

### Narrow band – weak signal modes

High frequency stability has allowed the narrow bandwidth weak signal modes to become reality for radio amateurs. Amateurs can sample bandwidths down to mHz (millihertz) and when coupled with DSP/Fast Fourier Transform (FFT) techniques signals can be pulled magically from the noise. For example a signal which is -23 dB within a 2.5 kHz passband can become a +5 dB level signal within a 4 Hz passband – it just takes longer for a QSO.

Amateurs can access relatively cheap GPS disciplined oscillators

which can provide very high frequency stability into the shack. For example, an ex-CDMA base station GPSDO – HP3815A can provide somewhere between  $1 \times 10^{-10}$  and  $1 \times 10^{-11}$  frequency stability which translates to a drift of better than 1/100<sup>th</sup> of a Hertz at 10 MHz or better than 10 Hz at 10 GHz. VK7RAE at Don Heads in Devonport is the first beacon in VK to be recently upgraded to provide high frequency stability beacons on 6 metres and 2 metres for weak signal experimenters.

Some notable narrow band applications that are currently available are:

WSJT – Weak Signal Communication by K1JT: 2.7 Hz bin width – down to -28 dB. FSK441 is used for meteor scatter, JT6M for ionospheric scatter, JT65 for EME at VHF/UHF, and for HF propagation. K1JT also produces a program called WSPR (Weak Signal Propagation Reporter) which uses similar techniques for propagation reporting.

WSC – Weak Signal Communicator by VK3HZ: 3.8 mHz bin width, down to -44 dB (WSJT scale). This highly experimental mode needs the sound cards to be GPS locked and uses

Spectrum Lab as the DSP engine. WSC was used to make a 288 km optical (474 THz) cloudbounce one-way contact between VK3 and VK7 in October, 2009.

Jason – Uses incremental frequency keying: - 4.28 Hz bin width using absolute frequencies which represent tones and the difference between two tones is used. ISK is a keyboard to keyboard mode.

QRSS – Very narrow band slow

CW (QRS): - 0.3 Hz bin width.

DFCW – Dual frequency CW: - mHz bin width, and splits the dots and dashes to two frequencies and slows it down and uses the waterfall display for visual integration. A QSO takes about 30 minutes to complete.

Weak signal modes like WSJT have enabled relatively modest Earth Moon Earth (EME) stations to be run within the suburbs whereas the traditional CW/SSB stations need large dishes and high power to bounce signals off our closest natural satellite.

Using WSJT JT65 mode via the moon using a 2.3 metre dish, Rex VK7MO and grandson Matthew can work similar sized small dishes with five watts and a large 25 metre dish run by amateurs in Holland with half a watt. On the 40<sup>th</sup> anniversary of the moon landing, the University of Tasmania allowed VK7MO and VK7TW to use its 26 metre dish and successful digital EME was demonstrated down to three milliwatts (QRP EME). Our recent access to the low frequency spectrum also provides a whole new area which is suited to weak signal and digital modes so, watch this space.

Radio amateurs have a large slice of radio spectrum – 23.353 GHz to be exact and this spectrum is under scrutiny all the time. The Australian 3G auction raised \$1.17B in 2001 and that was for only 110 MHz of the 2 GHz band! In Germany the same auction of their spectrum raised US\$67B! The push is always for spectrum efficiency and in future we will be expected to do more with less and these narrow bandwidth modes are demonstrating how we as radio amateurs could do this in the future.

### Internet backbone modes

There are a range of AR modes that use the internet as a virtual ionosphere (backbone). The digital age has provided streaming technology which can digitize an audio (or video) stream and send it across the Internet.

The most popular being the Internet Radio Linking Project (IRLP) created by VE7LTD.

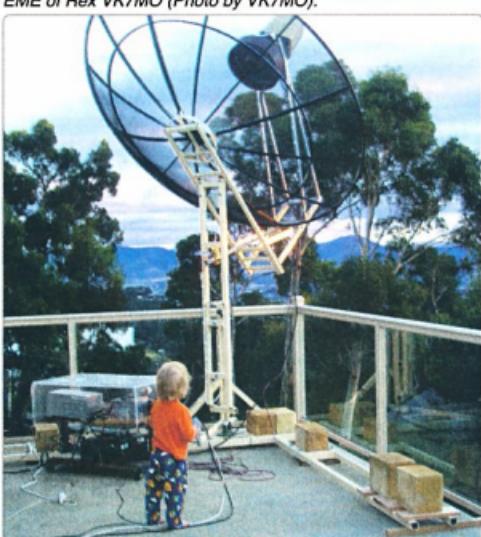


Photo 2: The balcony mounted small dish system for EME of Rex VK7MO (Photo by VK7MO).

This mode interlinks repeaters via the internet using DTMF tones and audio streaming technology (similar to Voice Over Internet Protocol – VOIP) with radio frequency (RF) at each end on repeaters. This mode enables world-wide communication using just a handheld by accessing a local IRLP enabled repeater.

EchoLink is another popular VOIP mode that was created by K1RFD and can also use RF to connect to an EchoLink enabled repeater. EchoLink can also connect two computers with no RF involved and this has very similar functionality to the VOIP phone applications like Skype, although it can only be used by licensed radio amateurs. DTMF tones can be used to access EchoLink nodes via IRLP using the EchoIRLP application.

WIREs II is Yaesu's 'Wide-coverage Internet Repeater Enhancement System' and uses internet streaming technology to connect repeaters in much the same way as IRLP and EchoLink with a desktop client available. Two other notable internet backbone modes are eQSO, which is a VOIP type system for interlinking repeaters and keyboards for radio amateurs, and CQ100 which uses a 'Virtual Ionosphere' with no RF involved.

#### Other notable digital modes

Packet radio both using AX25 and TCP/IP was very popular a decade or two ago and were some of the first modes that enabled computers to be connected to radios. This gave way to bulletin boards, internet wormholes (gateways) and is still providing much enjoyment for radio amateurs. Packet radio technology is also the basis for many other modes. Link a packet radio modem with a Global Position System (GPS) module and you have the Automatic Position Reporting System (APRS) created by Bob Bruninga WB4APR. Through packet digipeaters and internet gateways and the provision of geographical information systems like Google Earth a radio amateur can track APRS equipped vehicles, people, whatever, all around the world.

PSK31 is a very popular narrow bandwidth digital mode

and couple this with automatic link establishment protocols and you get a very useful propagation tool. This is HFLink and it is used to track propagation and post the paths to a website for contacts and emergency communications.

D-STAR is a collaboration initiated by the JARL which has been commercialized by Icom. It stands for 'Digital Smart Technologies for Amateur Radio' and uses 128 kbps digital data (DD) streams and 4.8 kbps digital voice (DV) streams. It can provide internet similar functionality and bandwidth at the radio dependent on the D-STAR repeater configuration. It can operate radio to radio or through a D-STAR enabled repeater or through a normal FM repeater. Repeaters can be linked via the microwave bands or internet links.

Digital Amateur TeleVision using both the digital video broadcasting (DVB)-terrestrial and line-of-sight DVB-satellite standards are becoming popular with ATV groups. The video and audio (MPEG) encoders and DVB modulators are produced by a number of manufacturers and are available to the amateur community. I am aware that VK2, VK3, VK4 and VK7 all have digital ATV running either through repeaters or from club studios and sites.

#### The Future

Given this is an article about the future I will make a bold prediction that we as radio amateurs will get to the point where it will be a novelty to 'actually' listen to the spectrum we are using! The spectrum unfortunately will become that polluted with extraneous noise that we will only be able to use digital modes to decode signals on the airwaves. This will provide the next big challenge that radio amateurs will need to address. Broadband over powerlines (BPL) is dead and gone (or at least it should be – many firms and retail outlets still seem to promote variations of this technology, such as Ethernet over power systems for use within the home that are currently available for sale in VK. Ed.)

but the challenge is now the constant flow of seemingly unregulated RF generating equipment that is entering the consumer market!

There will continue to be regulatory issues as technology development is always faster than policy and regulation development (bureaucratic hysteresis). These pressures are not new and I refer to the 1930 ARRL handbook:

*'Legislation has always been the arch enemy of the amateur. We have already seen that but for human erring on the part of the early lawmakers in 1912, the first encounter with this formidable antagonist would have likely ended in virtual extinction..... Grumblings and dark glances greeted moves on the part of the Radio Inspectors to get amateur stations down to at least 220 meters in 1921 and 1922..... A menace of another kind put in its appearance during 1926 and 1927. There appears a tendency on the part of municipalities to create city ordinances restricting local amateur operation.'*

Yet the amateur service has thrived, developed, embraced and overcome many of the challenges presented. The old adage could not be closer to the truth '*necessity is the mother of invention*' and the ingenuity and skill demonstrated by many in the amateur service will continue to underpin the hobby's future.

The very nature of amateur radio that I mentioned earlier is the very thing that saves it from becoming extinct. Radio amateurs are always looking for the 'novel' approach, unique contact, longest distance, DXCC, most contacts, that opening, lower power, and so on. We are always trying whether it is comtests, least cost, greatest distance, weakest signal, or whatever. This equals survival and we are 100 years young to prove it!

Editor's note: This article covers the material presented by Justin at the Centenary Conference in Canberra, May, 2010.





# It all started 100 years ago

## A review of the 100<sup>th</sup> anniversary celebrations

The Centenary Celebrations Committee

It all started just over 100 years ago when on 11 March, 1910 a meeting took place between like-minded radio enthusiasts at the Hotel Australia in Sydney.

There, a group was formed, initially known as the Institute of Wireless Telegraphy of Australia. A similar organisation took shape in Melbourne about a year later, known as the Amateur Wireless Society of Victoria. Like-minded organisations were gradually established in other Australian states, and in time these groups all became Divisions of a federated organisation known as the Wireless Institute of Australia.

Over the years, further restructuring took place. Now the national Wireless Institute of Australia, a single body continues to represent the interests of all Australian amateur radio operators.

Throughout last year, clubs, individual amateurs and the WIA celebrated **100 Years of Organised Amateur Radio in Australia** - a direct consequence of the foresight of the early experimenters in Sydney. Indeed, the formation of a determined negotiating body which finally became the Wireless Institute of Australia was probably due to the frustrations of individuals who sought permission to experiment with wireless transmission and were delayed or denied a licence by the authorities. A 'WIA' could apply a greater pressure than that possible by any individual!

So in recognition of what transpired over the past 100 years, it was considered appropriate that Centenary Celebrations were in order!

### WIA Centenary Celebrations - the vision

Conceptual planning to celebrate 100 Years of Organised Amateur Radio in Australia commenced in 2008, and in April, 2009 a brief outline paper prepared by David Wardlaw and Peter Wolfenden was presented to the Board of Directors. This included a brief review of the 75<sup>th</sup> Anniversary celebrations including aspects considered applicable to any the forthcoming 100<sup>th</sup> year event; they were:

1. A **celebration** - a time for amateurs to come together, enjoy each other's company and remember their past achievements.
2. A time to gain **publicity for our hobby** and educate the public.
3. An opportunity to further **add knowledge to our history**.

The Board gave its approval and a small Centenary committee was formed, made up of individuals with experience in the areas that needed to be developed. David Wardlaw VK3ADW headed up the group as Chairman, Peter Wolfenden VK3RV

undertook the history and archive research project, Jim Linton VK3PC acted as Centenary Media Officer and was responsible for much of the media aspect of our preparations, whilst Robert Broomhead VK3DN organised the promotional merchandise, website development and arrangements for the Centenary Weekend. Most issues involved the collaboration of all members of the committee.

The committee faced many challenges and hurdles, most were overcome, however a few ideas were simply not possible to implement. In the true spirit of the hobby many members stepped forward to assist the committee in a multitude of practical ways. It is true to say that these individuals are the 'unsung heroes' of the success of the year's activities - and there were hundreds of them! These members (and a number of non-members) really got behind the celebrations and finally made it all work so successfully. The commercial suppliers generously made available equipment and commemorative memorabilia. They also met some of the costs.

Their involvement is greatly appreciated.

A detailed report of all the centenary activities would be almost impossible to achieve within the space available in this magazine article. Many activities have been reported in their own right in various articles published in AR over the last 12 months and we would like to acknowledge and thank the many authors for their contributions.

In this article the Centenary Committee aims to present what we feel are a number of key highlights.

### Tangible results

The committee called upon the creative skills of Ivan Smith from Communiqué Graphics to undertake the development of the special Centenary logo. After viewing a number of choices Ivan had provided, the committee made its final decision and work commenced on the development of the Centenary Poster, QSL card, Centenary Award and Centenary merchandise.

One item the committee was very passionate about was the release of a commemorative postage

stamp and so we were extremely disappointed when we learnt that Australia Post had not accepted our proposal to produce such a stamp. Despite the committee's best efforts and despite the fact that we completely fulfilled Australia Post's requirement criteria, regrettably we were unable to change their decision.

In October, 2009 the appearance of a news release on the WIA website announced the many activities that were being planned for the 2010 Centenary year. This along with the availability of Centenary merchandise that could be purchased through the WIA's online store saw enthusiasm begin to build among members. By the end of January, 2010, the online registration form for the Canberra weekend was available via the website and within days people began registering for the weekend. The announcement that the Friday evening Telstra tower technical tours had been confirmed and the subsequent announcement that Dick Smith had accepted our invitation to speak at the Saturday evening dinner plus the Sunday afternoon BBQ at Dick's property saw registrations simply pour in.

The WIA website played an important role in communicating information about the Centenary and developing an interest in the planned celebrations.

The January/February issue of *Amateur Radio* saw the commencement of a series of historical articles written by Peter Wolfenden. Entitled: *Arena of Wonder* (a quote from George Taylor's press release on the formation of the Institute), the articles helped to explain the early days of organised amateur radio in Australia and provide readers with an insight to those who went before.

The release of the distinctive *Centenary poster* resulted in a lot of positive feedback from members, incorporating some fascinating imagery of early wireless experiments provided courtesy of the Waverley Amateur Radio Society. The especially themed Centenary artwork was used in a number of places during the year, including the

VK100WIA QSL cards, the Centenary Award and the 2010 Call Book. The range of *Centenary Merchandise* available from the WIA became extremely popular. Vests, caps, hats, jackets, shirts and other memorabilia were sold in the hundreds. A CD *The Sounds of Amateur Radio Volume 2* was released and *The Sounds of Amateur Radio Volume 1* (1985) originally on cassette tape was remastered and also released on CD. Another CD containing PDF copies of *AR Magazines 1933-39* was re-issued. These CDs will be available on an ongoing basis from the WIA Bookshop.

A special callsign, **VK100WIA**, was proposed by the committee and after much discussion and correspondence with the ACMA through WIA President Michael Owen VK3KI, it was announced that the callsign would be made available to the WIA for a six month period to be used by nominated affiliated clubs. An online registration form was placed on the website and clubs selected from the calendar a three day operating window, creating a fair and equitable way to share the callsign among the clubs.

There is little doubt that VK100WIA had a major impact on our hobby. From May to October, 2010 it was on air almost continuously, operated by over 50 clubs around Australia. The WIA website *VK100WIA online log*, recorded 24,460 contacts during this time and over 100 countries made contact with our special callsign.

The *Centenary Award* also proved popular with over 380 certificates awarded to the end of December, 2010 and further applications in January. Both VK100WIA and the Centenary Award have been very successful, resulting in the reactivation of many stations within Australia, generated a lot of interest from overseas amateurs and raised activity and interest levels within clubs.

### Gaining publicity

The WIA Centenary Committee recognised the importance of making a professional *Media Kit* available

to the clubs to ensure that those engaging with the media during the year had suitable resources to draw upon. The comprehensive kit prepared by Jim Linton VK3PC, included a template media release, background sheets on amateur radio and the WIA, plus a *how-to guide for clubs*. The WIA National Office posted out these kits approximately a month before each club's rostered VK100WIA slot and followed up each club with reminder emails.

It was very pleasing to see the media releases adapted with club information appear in so many newspapers and result in radio and television interviews. Undoubtedly the level of media coverage achieved right across Australia is something we have not previously seen. Hopefully the exercise in promoting the Centenary will have a long lasting influence on the way radio clubs think about promoting themselves and amateur radio in the future.

A decision was made to appoint a **Patron** to help promote the celebrations to the general public – someone who would be able to provide a 'public face' for amateur radio. Dick Smith VK2DIK not only volunteered his services as Centenary Patron but in the ensuing Canberra AGM/Celebrations in May, 2010, opened his private flying club, museum and barbecue facilities to us. As it transpired, this was a wonderful, awe-inspiring and unforgettable experience for all of those attending the weekend in Canberra including the representatives of international radio societies.

### A national formal celebration

The location, structure and timing for the *formal celebration* were major tasks. Robert VK3DN conducted much of the 'field work' with a number of visits to various locations and venues to seek out the most suitable that met our requirements. Facilities included not only the usual accommodation, dining and meeting/lecture facilities but also the requirement for a dedicated 24/7 radio room for an amateur radio station together with access

to a suitable roof for antennas with access permission to mount an array of antennas. There were additional requirements for a proposed ARISS contact planned to take place during the Saturday evening dinner.

It was decided to hold the special celebrations combined with the WIA AGM in Canberra, the nation's capital, which is reasonably central to the majority of amateurs in Australia. A bonus was that the IARU Region 3 was able to schedule their Annual Directors Meeting to coincide with the celebrations thus enabling a significant international presence at our Centenary celebrations.

The vision of a **National capital event**, designed to provide a number of interests for each person attending – including partners and families, gradually crystallised. The Canberra weekend was considered by many as a real highlight of the Centenary Celebrations. The weekend was based on the format of past **WIA AGM weekend of activities**, and expanded with many other facets including an opportunity to recognise our history. The **WIA AGM weekend of activity** theme, run for a number of years, has promoted a weekend with activities of particular interest to the radio amateur, so it was a unique but fortuitous coincidence that one of Canberra's most famous technical landmarks, the **Telstra tower** was celebrating its 30<sup>th</sup> Anniversary in the same month as the WIA Canberra weekend. The technical tour of the tower became a memorable element in the weekend's program and was followed by dinner in the tower's Alto revolving restaurant with spectacular views over Canberra. Thanks are extended to Telstra and property management for making the once in a lifetime technical tours possible.

During the Saturday morning the WIA conducted its **AGM** followed by the presentation of awards and the **Open Forum** which included reports on all WIA activities over the year and providing the opportunity for questions and comment from members.

The **historical presentation** held throughout the Saturday afternoon at Rydges Hotel was an

outstanding success brought about by the number and quality of the guest speakers and their subject matter which ranged from history, through construction techniques, ladies in amateur radio, to an overview of future developments in communications techniques. Oh, and the cat's whisker was in there somewhere also!

The **Centenary Dinner** featured a message from the Chairman of the Australian Communications and Media Authority, Chris Chapman; the Centenary contact with the International Space Station and Dick Smith VK2DIK as keynote speaker. The evening's events went off without a hitch. Astronaut and Flight Engineer Tracy Caldwell-Dyson KF5DBF delivered a congratulatory greeting to the WIA and all attending the dinner at the commencement of the ISS contact. Tracy then answered questions from ten students from Trinity Christian School: an evening the students and their Principal, Carl Palmer VK2TP/VK1TP – will not forget for a long time!

To conclude the evening, representatives from a number of international Radio Societies delivered messages of congratulations to the WIA and gifts in recognition of the occasion.

International visitors included: Tim Ellam VE6HS President, International Amateur Radio Union, Professor Joong-Geun Rhee HL1AQO Director IARU Region 3, Peter Lake ZL2AZ Director IARU Region 3, Gopal Madhavan VU2GMN Director IARU Region 3 and President Amateur Radio Society of India, Shizuo Endo JE1MUI Director IARU Region 3, Keigo Komuro JA1KAB representing The Japan Amateur Radio League, Isamu Kobayashi JA0AD representing the Japan Amateur Radio League, Panayot Danev LZ1US representing IARU Region 1, Roy Symon ZL2KH President NZART, Vaughn Henderson ZL1TGC NZART Councillor and Jay Bellows KOQB International Affairs Vice President ARRL.

On Sunday morning, the weekly VK1WIA news broadcast was transmitted live from the radio room at Rydges Lakeside

Hotel. Simultaneously recorded, it was also uploaded to the WIA website shortly after the broadcast concluded thereby making it available for retransmission around Australia and the world. This very 'first' live broadcast VK1WIA news was anchored by Graham Kemp VK4BB with live appearances by WIA President Michael Owen VK3KI, Vice President Ewan McLeod VK4ERM, Secretary Geoff Atkinson VK3AFA, WIA Office Manager Mal Brooks VK3FDL, Director Philip Adams VK3JN1, Director Peter Young VK3MV, Director Bob Bristow VK6POP, Director Phil Wait VK2ASD and Jim Linton VK3PC representing the centenary committee.

Following the broadcast, the focus moved to Dick Smith's Gundaroo property, where a wonderful day was enjoyed by all.

Sincere thanks are extended to the members of the **Canberra Region Amateur Radio Club** for their assistance during the weekend and to the management and staff of Rydges Lakeside Hotel for providing the venue and meeting our somewhat unusual requirements.

### Legacies of our 100<sup>th</sup> year

Whilst the formal Centenary Celebrations are now well behind us, a number of **legacies of the year** remain. Some of these are in the form of new friendships and stimuli for clubs, but there are others which are the result of the combined efforts of many people over the years. The sorting of the many uncatalogued documents held by the Institute has enabled an **embryonic Archive to be established** at the national office in Melbourne. One early project undertaken is the scanning of all callsign listings and callbooks from 1912 onwards. Although this is still a 'work in progress', it has already paid dividends for the institute which can now, from searchable PDF files, relatively easily answer enquiries about licensed amateurs – usually from family historians.

Another major ongoing result of the year's celebrations is the wonderful response to the **'Call for Historical Articles'** in AR.

This resulted in many submissions, some of which have already been published. Other very interesting and significant articles will follow and all material will be indexed and added to our archive for use by future researchers.

We can all be part of the ongoing Centenary Celebrations of Organised Amateur Radio in Australia, by contributing historical material to the WIA Archive - a true legacy of our 100th year!

Another significant on-going aspect of the celebrations is the **availability of media help**. If you have not already done so, check out the 'VK100WIA Club & Media Feedback' section on the WIA website. A request for a special media release has in the past been received from a few clubs, but most felt comfortable preparing it themselves by drawing on the media kit. Having done this for the Centenary, there is no reason why a club cannot do it again in the future - such as for the National Field Day, this year entitled 'Amateur Radio, The First Technology-based Social Network', to be held on 17 April, 2011.

Clubs are also now aware of the need to have knowledgeable, friendly and well groomed ambassadors, if possible across a wide demographic and of both genders, to give a first positive impression to any members of the public attending a club event.

**Helping to raise the public profile of local radio clubs is another legacy of the Centenary celebrations.**

## A constructive year for amateur radio in Australia

In summary, the real significance of 2010 has been much more than the events and images. It was a very friendly and constructive year. A year when many felt proud to be a radio amateur, and proud of the WIA and what it has achieved over the years. 2010 was a year that rekindled an interest in amateur radio for many people, generating a new pride, new interest, and new enthusiasm. Long may it continue!

We sincerely appreciate the generosity of all who contributed to make the Centenary Celebrations such an enormous success. There were many people who made it all possible - especially our Patron, Dick Smith VK2DIK, a wonderful and generous person.

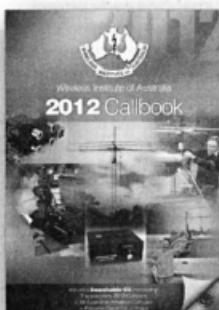
It was definitely not just the work of the four committee members. At times officers of the Institute assisted the committee in the planning and implementation work. People like Michael Owen VK3KI, President, Geoff Atkinson VK3AFA, Secretary, John Longayroux VK3PZ, Treasurer, Peter Freeman VK3PF, AR Editor, and the other WIA Directors, not to forget the office staff in Bayswater!

The guest speakers at Canberra who all did a most outstanding job of their presentations, are worthy of special praise, as are the Canberra Region Amateur Radio Club members for their assistance, including the bus drivers and private car owners who helped with transporting guests.

Those club members who helped so ably in providing appropriate publicity to local media and radio stations as well as the outstanding work of our own broadcast co-coordinator/announcer, Graham VK4BB and Clubs Co-ordinator Ted VK2ARA.

The efforts of local radio clubs which contributed in so many ways were major players in the year's activities. Some organised special events or re-enactments, like the Gippsland Gate Radio and Electronics Club, or the involvement with the public *Science Alive* activity in Adelaide. *Super Spring Time* in Perth was a real co-operative event involving a number of clubs. The dedication of the 'Dural Shed' in Sydney and the 'Neil Penfold Centre' in WA will provide a continuing long term focus for many amateurs. It is appropriate that these two significant facilities were opened this year. In Tasmania, Justin VK7TW also conducted multiple radio interviews publicising both amateur radio and his club's VK100WIA operation from the Domain. Many, many others contributed in a multitude of ways to their hobby and their community this year.

This list could go on and on. But the most important people of all this year are the individual radio amateurs who joined in the spirit of celebrating 100 Years of Organised Amateur Radio in Australia. Thank you all for your time and interest; it was a worth-while year!



# 2012 WIA Callbook On Sale Now

For more details, head to [www.wia.org.au/members/bookshop/about/](http://www.wia.org.au/members/bookshop/about/) or contact the WIA office on 03 9729 0400 between 10.00 am and 4.00 pm (EST).

As a special offer to all WIA affiliated clubs the WIA is pleased to offer **free delivery** for a box of 25 callbooks delivered direct to your club anywhere within Australia. Full details, including order form, are at [www.wia.org.au/members/clubs/clubpurchases/](http://www.wia.org.au/members/clubs/clubpurchases/)

# WIA Travelling Badge Competition

At the 1980 Federal Convention the WIA membership approved the use of the international Diamond Badge as an alternative to the official WIA emblem that we have today. The badge (pictured) was based on the well-known and long-established international diamond shape which had been adopted by the ARRL in the mid 1920s. The ARRL badge contained an aerial, capacitor (with the ARRL abbreviation in between the plates) and an earth. The final design of the WIA badge was put forward by Bill Roper VK3ARZ and replaced ARRL with WIA.



Some 30 years later at the 2011 Annual Convention the membership proposed that the WIA revisit the offering of a badge which could be displayed by travelling VK amateurs, or simply collected. The WIA believes that the reintroduction of a International WIA Diamond Badge has merit and is seeking the submissions of design suitable for use on the same diamond shape as originally used. The designs (which may include the original 1980 one) will be reviewed by the WIA board and presented in February AR to allow the membership to vote to select the most popular design capable of being manufactured at a reasonable cost.

So get your creative juices flowing and submit your design by email to the WIA HQ at [nationaloffice@wia.org.au](mailto:nationaloffice@wia.org.au)

Christopher Platt VK5CP

# TET-EMTRON



New HFTW Tapped Whip. New designing allows this whip to be separated in the centre for easy and clean storage in its own bag inside your car.  
-Coated with thick, tough waterproof glue lined heatshrink.  
-Covers amateur bands 80-6 m, as well as most popular 4WD and RFDS.  
-Covers 160 metres with our new extension.  
-Covers the long talked about 60 m band.  
-Comes with its own drawstring storage bag.  
-Large easy to read writing.  
Does not include HF base and spring.

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# A four element six metre Yagi for 50 to 52.5 MHz

Paul McMahon VK3DIP

## Outline

This article describes a four element Yagi particularly suited to the SSB and narrow band parts of the Australian six metre band. It is directly matched to 50 Ohms and produces good gain and VSWR from 50 MHz up to 52.5 MHz.

## Introduction

This Yagi originated out of a desire to replace my previous six metre horizontal antenna, an omni-directional crossed turnstile diamond quad (Reference 1) with something with more gain and directionality. I had built several six metre Yagis in the past but all had ultimately mechanically failed, usually with the assistance of a large number of local birds. The turnstile quad had been a reaction against this and had proved pretty much bird proof with no convenient roosting spots, and had delivered more than its fair share of DX, but the lure of the higher gain Yagi is strong. So the search commenced for a good design both in terms of RF performance and mechanical strength.

## Base Design

The RF performance objective was in many ways the easiest to achieve. The basic parameters I was after were good performance on both the 50 MHz and 52 MHz portions of the band, with a size roughly three metres square (half wave by a half wave) to fit comfortably on my rotator, and to suit the maximum length of readily obtainable boom material. I started with YagiCAD (Reference 2) and took a previously designed wide band two metre Yagi (Reference 3). I removed the last two directors and scaled it to 51 MHz, which was more or less the centre frequency of the band I was looking for. The resulting antenna was not too far off what I wanted but was slightly over 3 metres in boom length. A session with the genetic optimiser optimising for maximum gain and a good VSWR over the range 50 to 52.5 MHz, with the added hard limit to the three metre boom length, produced the final design given above in Table 1.

Element	Length (m)	Position (m)	Diameter (mm)
1	2.902	0	16
2	2.788	1.076	16
3	2.636	1.769	16
4	2.567	2.928	16

Table 1: Base design, position measured from element 1.

At a frequency of 51.0 MHz this gave:

- Input Impedance =  $52.74 + j 12.76$  Ohms
- Forward Gain = 9.4 dBi
- Front-to-Back Ratio = 12.9 dB

The pattern obtained is shown in Figure 1. Along with the overall response in Figure 2.

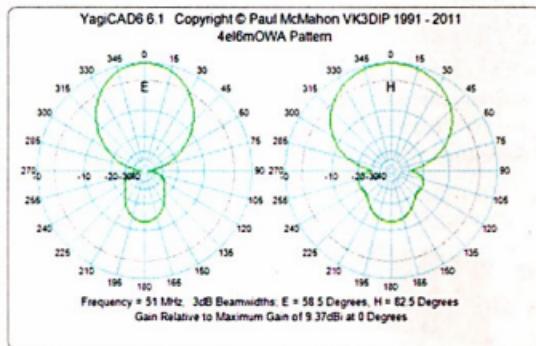


Figure 1: Antenna pattern.

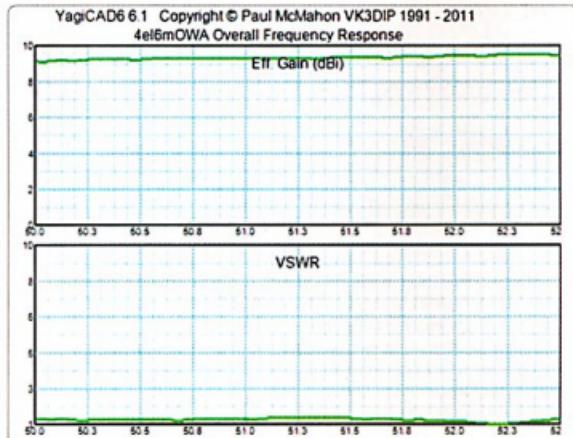


Figure 2: Overall response.

## **Practical considerations - or how to spend hours in a hardware store without even trying**

Getting the base design was relatively easy but implementing the design in practice can be a challenge especially if you want to minimise cost, and the need for hard to get bits and pieces. My goal is to be able to buy all the bits I need at one of the local (large) hardware stores, so usually I end up spending a lot of time wandering back and forward between the aisles taking bits with me to see how they fit together. A couple of the things I found have already been reflected in the design above, the boom limit of three metres, and the 16 mm aluminium tubing for the elements.

For the boom I had quickly given up on using aluminium because of cost, and the desire to stay with an insulated boom. I have had good success with using electrical conduit as boom material at 2 m and 70 cm in the past and the cost is a fraction of aluminium. For 50 MHz use however even the larger diameter electrical conduit was looking a bit floppy in three metre lengths, and the cost of a piece of wood dowel to stiffen it up was almost going to be more expensive than an equivalent aluminium boom. While wandering back and forward between the wood and electrical aisles, I went through the plumbing section and discovered 40 mm diameter plastic pipe. This is particularly useful because I found that there are several types of 40 mm pipe and 40 mm DWV telescopes nicely into 40 mm Class 9 (but not the Class 12) pressure pipe both of which were available in three metre lengths. So my scheme for the boom is a three metre length of 40 mm DWV with a 1.5 metre length of Class 9 pressure pipe slipped over and glued in the middle. This makes a quite rigid and light structure which can be painted if required to increase UV resistance, and at a considerably lower price than aluminium or even wood. One of the other advantages of this sort of boom is that it is hollow; on the way home from purchase of the components all the elements fit easily inside the DWV with the pressure pipe over the lot for a very neat package.

I am sure with a bit of fiddling and a couple of tube end caps (one with a thread) this could make an ideal field day or portable antenna.

The element diameter and material were chosen reasonably quickly based on the simple criterion of aluminium tube being readily available in three metre lengths, and 16 mm diameter looking like it would support a fair few birds.

Probably one of the most challenging parts of this and any direct connect Yagi is the driven element, and early on I realised that I was going to have to come up with a robust way of achieving this. My usual technique as used in previous 2 m and 70 cm Yagis (Reference 3) has been to use half-inch copper water pipe reinforced with an internal 10 mm diameter fibreglass electric fence rod. While I could have used this here I felt that this would be too thin and heavy in the lengths required for 50 MHz. The previous technique also involved the driven element going through the boom, with a reasonably large hole being needed to facilitate soldering the connections, and I felt this would produce a point of weakness in the boom with the longer lengths involved at 50 MHz. What I did come up with however is a more complex variation on this involving a length of the same fibreglass rod, a 13 mm black plastic hose joiner, a 20 mm conduit inspection tee, some 20 mm light duty conduit, a couple of snail proof plant tags, and lots of silicon filler. The details of exactly how this all goes together are given in the 'building it' section but what is important here is that the driven element would end up sitting on top of the boom, while the other elements would go through the centre of the boom. The question then was; would having the driven element displaced by 35 mm vertically above the plane of the rest of the elements have any bad effects on the basic design?

### **Enter 4NEC2**

In the past when faced with this sort of question I have often just added some more code to YagiCAD. There is no question the base NEC2 engine would easily handle this sort of question, but in this case, apart from this one time I wanted to check the

effect of a displaced driven element, who else would ever want to do this sort of analysis? Basically what this required was a NEC2 program that took arbitrary geometry antennas as input. Fortunately there exists an excellent example of this sort of thing called 4NEC2 which is available for free as detailed in Reference 4. Arie Voors, the author of 4NEC2, has produced a very fine piece of software; it handles all the possible tasks that one could ask of the NEC2 engine and then some. I use 4NEC2 for all my non-Yagi antenna modelling as it has equal or better features to most of the commercial pieces of software and of course the price is right.

The one fundamental problem of all these styles of arbitrary geometry antenna programs is data entry. Describing the actual antenna geometry can be cumbersome and prone to user error, as basically the user has to break the design up into a number of wires, and then enter the co-ordinates of each end of these wires in three dimensions into the program. Once you have learned the particular data entry mode of one of these programs then there is almost nothing you cannot model, but this still takes a bit of effort to get right. Only having to deal with Yagi antennas, and only using physical terms to describe the Yagi that would be reasonably familiar to most hams, YagiCAD can have a much simpler interface which hides much of the complexity of the NEC2 engine from the user. The trade off for YagiCAD is that you are stuck with pretty much vanilla Yagis which is why I occasionally, as in the case here, find myself needing the flexibility offered by 4NEC2.

Apart from sharing the same underlying NEC2 engine as 4NEC2, YagiCAD has for many years been able to export the current Yagi design in raw NEC2 format, which 4NEC2 can then read in and analyse. This process works well, but it can still be cumbersome to manipulate the data once in 4NEC2; for example varying the antenna height above ground requires editing the input file and changing the Z co-ordinate on each end of each of the wires.

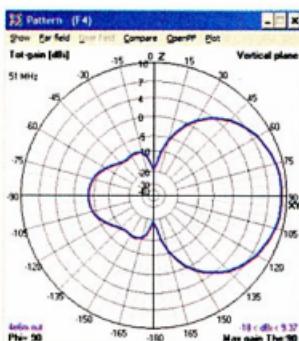


Figure 3a: Base Yagi far field pattern 4NEC2.

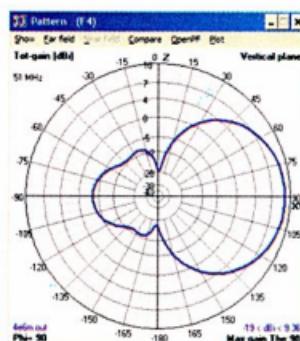


Figure 4a: Modified Yagi far field pattern 4NEC2.

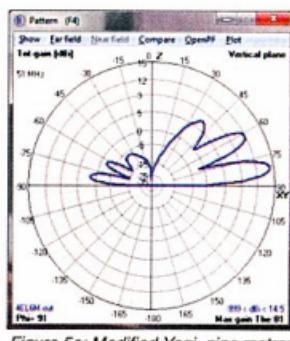


Figure 5a: Modified Yagi, nine metres above real ground, far field pattern 4NEC2.



Figure 3b: Base Yagi main display 4NEC2.



Figure 4b: Modified Yagi main display 4NEC2.



Figure 5b: Modified Yagi, nine metres above real ground, main display 4NEC2.

A single missed end or typo can cause chaos. As of version 6.1.8 of YagiCAD, I have also added a 4NEC2 specific export feature which includes in the exported NEC file some extensions to the standard NEC format supported by 4NEC2. In particular this includes a single parameter for height along with a number of other so called symbolic variables which can make playing with the resultant antenna in 4NEC2 much easier.

So to check the effect of displacing the driven element I exported the design to a .nec file and ran the basic single frequency pattern analysis. The results are shown in Figure 3a, and 3b.

As expected from using the same underlying engine, apart from slightly different rounding, these results are identical with those obtained from YagiCAD. Raising the driven element by the expected 35 mm can now be easily done in the 4NEC2 editor and the program re-run. The results for this can be seen in Figures 4a, and 4b.

Comparison of Figures 3 and 4 shows, luckily, only very minor differences. The pattern is now slightly asymmetric but the numerical values of input impedance and gain have varied only by the smallest amounts. These, and some runs swept across the frequency range of interest, confirm that the slightly

offset driven element planned will not have any great effect on the Yagi.

While we have the design in 4NEC2 we can also see the effect of having the Yagi sitting above real ground rather than the usual YagiCAD case of free space. For this run I have set the height at nine metres, because that is about where it will be in my case, and the results are shown in Figures 5a, and 5b.

Apart from the differences due to these figures being taken from a slightly later version of 4NEC2 running on a Windows 7 PC rather than XP, once again the input impedance shows very little change from the free space case so matching will still be fine, but the

pattern is quite different. This effect is pronounced here because the height is relatively small in terms of wavelengths, about 1.5 in this case; usually you need an antenna to be several wavelengths above ground to get a reasonable approximation of free space. The net effect of the pattern change here is to create a number of lobes at various elevation angles. These lobes are created as the various waves, both direct and reflected from the ground, add or cancel depending on the distances they have to travel.

This sort of thing happens with all antennas above real ground. This effect literally brings pluses and minuses; for example, in this case for signals coming in at an angle of about 10 degrees above the horizon there is over 5 dB additional gain above what would be expected in free space. Conversely signals coming in at about 20 degrees have lost all gain and are about 9 dB worse off than free space. In practice of course ground is not a perfect flat thing and there are houses and trees and such like in the real world so the actual pattern achieved will be a less well defined version of this. The general trend will, however, be more or less independent of the actual antenna used; the higher the antenna the more lobes, the lower the angle, and the more the sum of those lobes will look like the free space case. The lower the antenna, the fewer the lobes, but the higher the angle, and the smaller the peak. So except in special cases where you want your DX from one particular spot the general rule is the higher the antenna the better. Height in these cases is of course in terms of wavelengths; at 70 cm seven metres is quite high (about 10 wavelengths), whereas at six metres the same seven metres is low (just over one wavelength), and at 80 metres it would be very, very low (under 0.1 wavelengths). One of the best ways to visualise this effect is to use the 4NEC2 3D viewer as shown in Figure 6.

## Building it

Assuming you have managed to get together all the items or equivalents as listed in Table 2 the first task is glueing the boom.

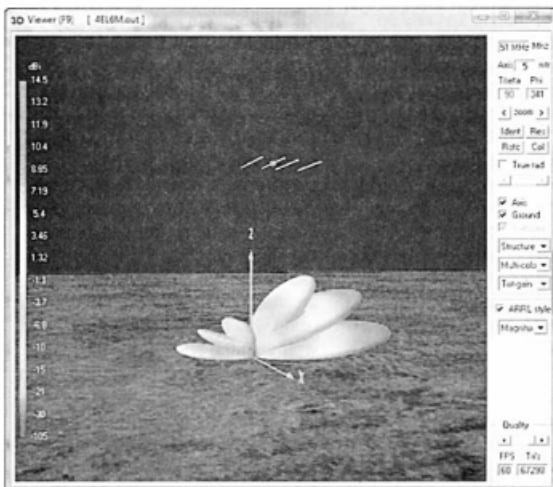


Figure 6: 4NEC2 3D viewer showing the pattern for the modified Yagi at a height of nine metres above ground.

1. If you have the three metre length of 40 mm class 9 pressure pipe (the outer pipe) it needs to be cut in half, at 1.5 metres.
2. The two pipe sections should be test fitted together with the class 9 centred, and marks made on the 40 mm DWV showing where it comes up to. Note both sections of pipe have a stripe of writing detailing type, size and so on. When these two halves of the boom are finally glued it will make life easier if these two stripes end up aligned.
3. Surfaces should be prepared as per the instructions on the glue as far as cleaning and general preparation. However, rather than painting the glue on as normal, which for such a large area of overlap may dry before we are ready, what I found worked was to:
  - a. Secure one end of the inner tube, for example, have someone hold it.
  - b. Position the outer at the start of the overlap.
  - c. Slowly pour the glue onto the inner pipe while sliding the outer pipe into final position.
  - d. While sliding and pouring, slowly rotate the outer pipe to distribute the glue between the two pipes.
- e. Make sure you end up with the writing stripes aligned.
4. The glue sets reasonably quickly so do not take too much time or you will get stuck before the outer pipe is in final place. The intent is to end up with the 1.5 metre outer pipe positioned over the centre of the three metre inner pipe with a thin layer of glue between the two pipes all along the overlap - but nowhere else!

While the Boom glue is setting you can cut the aluminium elements to length. The three parasitic elements are cut as per Table 1. The driven element piece of aluminium is cut to the length shown in Table 2, divided by two, minus the two mm middle spacer gap, that is one mm each side, thus 1.393 metres.

The next step is to assemble the driven element. A cross section diagram of the centre of the driven element is shown in Figure 7.

The driven element is by far the most complicated bit of construction. The scheme I have used here is very much belts and braces as I wanted this to last for some time. The obvious weak point in any directly driven element is the break in the centre of the aluminium. In the scheme here I have used a length of fibreglass rod to strengthen

this point rather than to just rely on the strength of the conduit inspection tee. Ideally the fibreglass rod would have been a snug fit inside the 16 mm aluminium tube but I could not source any of this diameter so I used 10 mm fibreglass rod effectively padded out with a filler. In my case I used silicon because I had a large tube/gun of it to hand, but if you had some two part epoxy this would probably be better. The centre insulator is a 13 mm black plastic hose joiner which may or may not require some drilling out to take the fibreglass rod. Short extensions of 20 mm conduit are used to both further support the aluminium and to act as a housing for the ferrite cores used as the balun.

The last aspect of note in the driven element is the electrical connection to the coax. I looked at several schemes involving aluminium solder, and clamps and screws, but all suffer from being either subject to corrosion leading

to bad contacts and/or requiring holes through the element, and in this case, the strengthening rod, which would ultimately lessen the mechanical strength of the element. The simplest scheme would have been some form of electrical hose clamp combined with the use of special electrical jointing compound such as 'Penetrox' or equivalent, but I have not found this yet at the local hardware store so I needed an alternative. What I ended up using was a technique of tightly wrapping the ends of the elements with strips of copper shim. The shim was sourced as a packet of plant labels from the gardening section of the hardware store but any other source, such as EMI or leadlighting tape, would do. The idea here is to provide a dual mechanism of contact. Firstly the large area of copper in close contact with the aluminium will minimise the contact resistance. Secondly if, in the longer term, moisture gets past the seals

and oxidation takes place between the copper and the aluminium thus increasing the resistance, the copper and aluminium will form a tubular capacitor (aluminium oxide is actually a good dielectric) which with the close spacing and areas involved leads to effective capacitive reactance values well under an ohm at 50 MHz, even with only one 20 mm wide strip. The coax is soldered as normal directly to the copper shim. This is, of course, the theory; only time will tell how well it actually survives, hopefully at least long enough to get hold of some 'Penetrox'.

Figures 8 through 14 show the driven element and its components at various stages of construction. One key thing to remember is to always try fitting the pieces together without glue or silicon first; it is a lot easier to adjust spacing, or hole diameters, with separate components rather than with bits glued together.

## Parts List

Item	Description	Quantity	Comments
Boom -part 1	40 mm DWV pipe	3 metres	Should fit neatly inside the class 9.
Boom -part 2	40 mm Class 9 pressure pipe	1.5 metres	For example, half a three metre length, neat fit over 40 mm DWV.
Glue	Plumbing pipe glue	some	Either red or blue; I used blue.
End Caps	40 mm DWV cap	2	Optional, fit last if required.
Elements	16 mm diameter, 1 mm wall, Al tube.	4 by 3 metres	Cut to lengths given in text.
Inspection tee	20 mm inspection tee	1	For example, Clipsal 246-20.
Hose joiner	13 mm barbed pipe joiner	1	Typical black plastic, cheap irrigation fitting. Check inner diameter to fit 10 mm fibreglass rod.
Fibreglass rod	10 mm diameter fibreglass rod	Approx. 750 mm	Off cut from earlier project - originally electric fence support sold in 1 or 1.5 metre lengths.
Conduit	20 mm (gray) electrical conduit	3 by approx. 75 mm	Off cuts from earlier project. A 5 metre length is cheapest. Caution; it must fit neatly over 16 mm Al tube. Some do, some do not, so check first.
Shim	Copper shim, 20 mm wide	2 by 60 mm	Sold in plastic packet as long life plant labels, or alternately EMC /leadlight tape.
Coax (tail)	RG58	3 metres	Good quality is best.
Connector	N (RG58) Inline female socket	1	Could use PL259 if desired
Balun	Ferrite tubular cores	6	Jaycar part number LF1258, packet of 6.
Filler	Silicon filler	Lots	If silicon, get the neutral cure type, much cheaper by the large tube even if you have to buy the gun also.
Bolts	75 mm 6.5 mm galvanized bolt, nut, washer set	2	For mounting the DE to the boom
Epoxy putty	5 minute epoxy putty	Approx. 50 mm	Sold in stick form, example, Selleys KNEAD IT

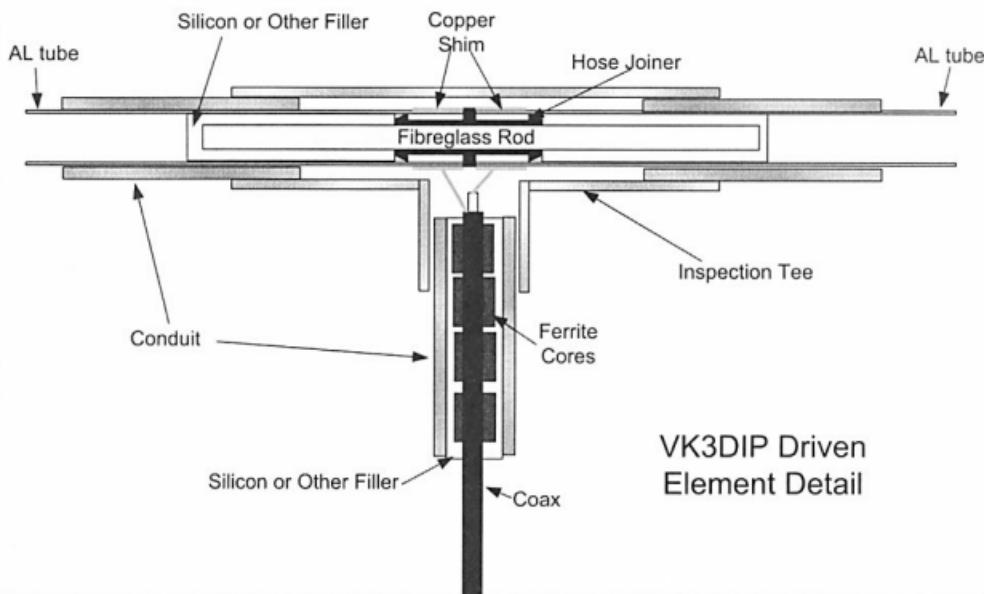


Figure 7: Driven element assembly cross section.

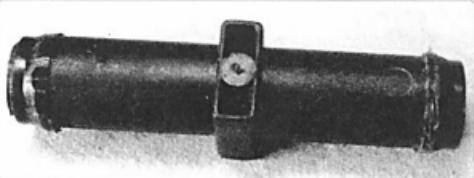


Figure 8: The hose joiner used as the centre insulator.

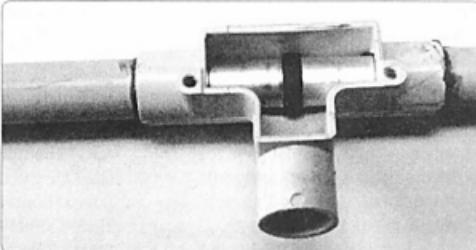


Figure 11: DE inspection tee.

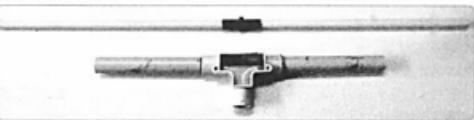


Figure 9: The hose joiner threaded on the fibreglass rod next to the inspection tee.

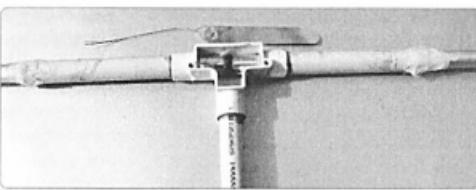


Figure 12a: Copper plant tag shim with driven element.

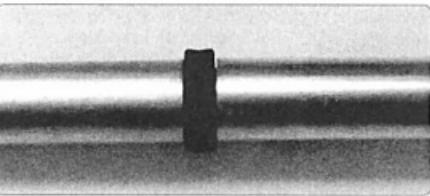


Figure 10: Close up of DE separator.

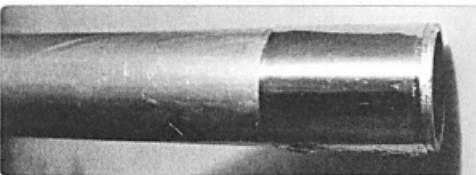


Figure 12b: Copper band on driven element.

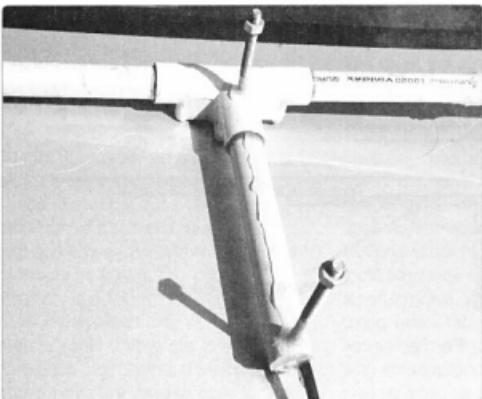


Figure 13: Completed DE bottom view showing mounting bolts.

The following is the best order to assemble the DE:

1. Cut and/or drill as necessary all the bits to size, and try them without glue to ensure they fit.
2. Wrap tightly the copper shim around what will be the inner ends of the two halves of the aluminium tube. Use solder to join the ends of the shim. Try to keep the copper hot with the aluminium cold so as to allow the copper band to pull tight as it cools. If you have 'Penetrox' or equivalent, use it as a layer between the two metals.
3. Fix the hose joiner in the middle of the fibreglass rod with a dab of glue inside the joiner, and allow to set. Use hot melt glue if impatient.
4. Position the joiner and fibreglass rod in position in the conduit tee - cover removed - so that the visible bit of the joiner/separator is in the middle of the inspection window.
5. If you are using silicon filler, and if not see point 7 following, then fill the inners of the two inner ends, the ends with the tightly fitted copper bands, of the aluminium tubes with silicon or equivalent filler.
6. While the filler is not set, carefully push the two aluminium tubes over the two ends of the fibreglass rod and down to cover all but the two mm - or so - gap formed by the middle of the hose

7. As an alternative to point 5, and 6. If you are using epoxy fit the two halves of aluminium together over the fibreglass then for one half at a time, holding the element vertically, carefully pour the epoxy down the ends of the aluminium tube so that it runs down into the gaps between the aluminium and the fibreglass rod. Obviously having done one end you have to wait for it to set before inverting the element to do the other side.
8. Glue the three short lengths of 20 mm conduit in place to the inspection tee. For the two pieces that go over the aluminium add a dab or two of silicon as you slide them on at the end to act as a seal.
9. Drill the holes for the mounting bolts. In my case one of these went through the lid of the inspection tee and out the bottom near, but not, of course, touching the join of the aluminium. The braid and the centre of the coax will go either side of this bolt. The second bolt hole goes through the far end of the conduit extension that will house the balun ferrites.
10. It is probably a good idea at this time to drill the matching mounting holes in the boom and check that they line up nicely.

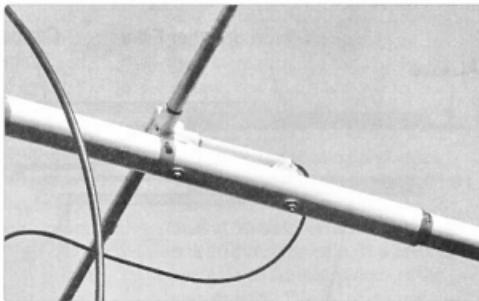


Figure 14: Completed DE mounted on boom - note epoxy putty fillets.

Before doing this however you should drill the holes for the other elements on the boom. These other holes are simplest drilled at the spacing specified in Table 1 by temporarily attaching the boom tube to a length of flat straight timber, using masking tape or similar, with the marking line on the boom tube uppermost. This line will then give you a guide to mark out and subsequently drill the positions of the holes. The DE mounting holes are drilled at right angles to the other element holes at a position which has the aluminium parts of the DE at the correct spacing to the other elements.

11. The coax tail to be connected to the DE should now be prepared. I used a three metre length of good quality RG58. One end was terminated with an inline female type N connector and the other end has the six ferrite cores slipped over and tacked into place with hot melt glue. The ferrite sleeves are positioned such that when approximately 30 mm of outer cover is removed there is enough braid/inner to pass either side of where the mounting bolt will go and still be solderable to the copper shim as per Figure 7.
12. Once you are sure it will all fit then solder the braid and inner in place and insert the bolts. The bolt at the end of the conduit needs to be inserted so that the coax tail passes to one side.

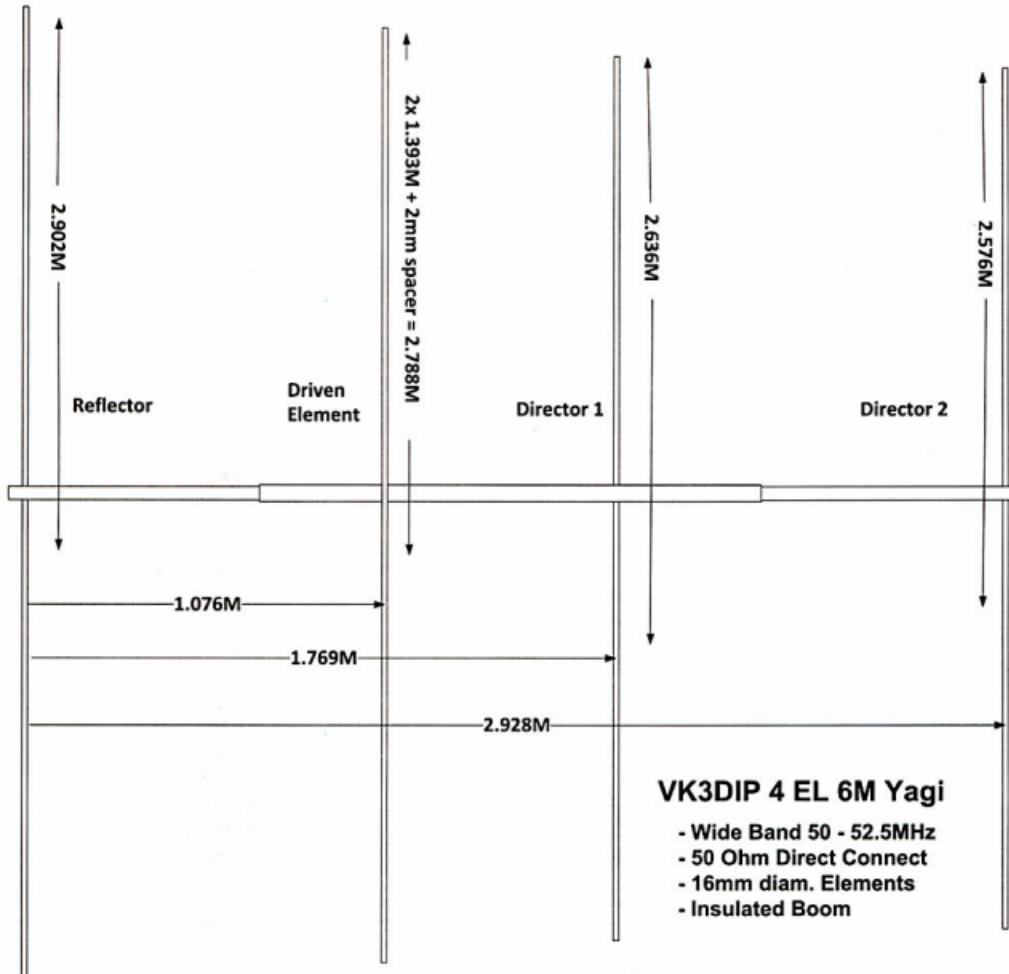


Figure 15: Yagi summary diagram.

Once the bolt at the coax tail end is in place the section of conduit with the balun in it can be sealed with yet more silicon.

13. Before finally placing the bolt that goes through the inspection tee lid, note that the tee cover is not water tight by itself so a bead of silicon is needed around the edges. Do not add too much if you want to be able to open it at some later time.

14. You should have already checked that the DE mounting bolts slide

cleanly into the holes in the boom. At this point take approximately 50 mm of a stick of epoxy putty and knead to mix the two parts. Form into two equal blobs and position around the two mounting bolts



Figure 16: Final Yagi mounted on mast.

and insert the bolts into the boom squashing the putty to form a fillet between the boom and the DE. Do not at this time add the nuts or tighten as the idea is to leave about 5 mm of putty between the two pieces. Once the putty has hardened then the nuts can be added and the bolts tightened to secure the DE to the boom. If you wanted to build the antenna for portable use then it might be a good idea to have wrapped the boom with a layer of plastic wrap first to facilitate taking it apart later.

The final steps to assemble the Yagi consist of inserting the other elements in the relevant holes in the boom and putting end caps on the boom. If you intend to take the antenna portable then you can use either large rubber bands made from old inner tubes in a Figure 8 pattern, or cable ties to hold the elements in place, and threaded end caps. If you do not intend to go portable then you can glue/silicon the elements and end caps in place. I do not

recommend using a fixing bolt through the boom and element as this necessitates a weak point in the element which, given enough birds and time, will break.

For a final touch the entire antenna boom and DE support can be painted to improve UV resistance. A summary of the completed Yagi configuration is shown in Figure 15.

### Tests and results

The prototype Yagi was completed and raised into the air an hour or so before the start of the 2011 John Moyle Field Day contest. The RG58 tail was connected to a longer length of RG8 down into the shack and the VSWR was checked. VSWR was almost exactly as predicted, with values under 1.5 to 1 from 50 MHz up to just over 52 MHz. By 52.5 MHz the VSWR had risen to 2 to 1 and climbed steeply after this. Receiving tests comparing the received signal of a beacon on the Yagi versus the old crossed turnstile loop showed the Yagi to be considerably better and with the predicted directionality.

The completed antenna on the mast is shown in Figure 16. While conditions were not favourable for DX in the John Moyle, many contacts on six were made at over 200 km distance.

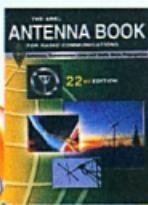
While it is still very early days for the Yagi - some two months later at the time of writing this article - the antenna has since been through some pretty wild and wet weather and the performance and VSWR have not varied at all.

### References

1. For details of the 6 metre quad turnstile see: <http://www.yagicad.com/Projects/6QdTurn.htm>
2. YagiCAD is freely available for download at: <http://www.yagicad.com/YagiCAD/YagiCAD.htm>
3. Simple wideband Yagis for 2 m and 70 cm – by Paul McMahon VK3DIP. Amateur Radio magazine, September 2008.
4. 4NEC2, a NEC based antenna modeller and optimizer by Arie Voors can be obtained from: <http://home.ct.nl/~arivoors/>



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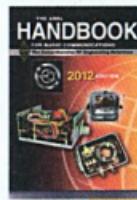


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# Western Vic JOTA/JOTI 2011

Ash Clark VK3SSB



Photo 1: The 'JOTAVILLE' camp.

The Western Vic JOTA/JOTI camp brought the Grampians to life again this year as 124 Scouts gathered at the Cooinda Burrong Scout Camp to participate in what is the world's largest annual scouting event. Groups from the far south like Warrnambool and Portland, through Hamilton, Horsham and right up to Kaniva and Hopetoun attended,

making a total of 15 different Scout groups.

Cars and trailers flowed in on the Friday night with troops setting up camp while listening to our onsite entertainment station, JamFM. Scouts enjoyed a social evening of setting up camp and meeting some other groups from different corners of the State.

Saturday morning started with the JamFM rude wakeup call at 7 am, in order for opening parade at 8.45. The Official Opening from Governor General Quentin Bryce was aired to announce JOTA/JOTI 2011 open and our big day of activities began. Scouts spent the day participating in great activities, like fox hunting, geocaching, radio orienteering, communications in the bush and mast building, SES car rescue with a Jaws of Life demo, electronic kit building, JOTI and of course the amateur radio activity, JOTA.

Our amateur radio station VK3SAW was given a major overhaul for this year. After JOTA in 2010 we decided that we needed to introduce the Scouts to some of amateur radio's more exciting modes like SSTV and APRS. We set up a local two metre SSTV repeater where the Scouts would send through a photo of their patrol to then see it be received back with a special 'Western Vic JOTA' template applied to it. We also set up and ran three radio backpacks on the orienteering, fox hunting and geocaching activities and had a screen set up so as the other Scouts and Leaders could track each patrol's position on a Google Earth screen using APRS. These modes, in conjunction with our three fully set up amateur radio tents, three big towers and a big bright information board on amateur radio was enough to capture the interest of most of the Scouts who visited our station. Every Scout who made a contact at our station was also given a special QSL Card with which they recorded the details of their contact.

Saturday night was about wheeling and dealing as the Saturday Night Market opened for trading. Each group had a stall where they ran competitions, sold food, with one even selling cordial in a self-made paper cup!



Photo 2: A group of Scouts enjoying their radio activities.

Regional Commissioner Jon Peart and wife Anne were even spotted spending a few JOTA dollars at the market!

On Sunday morning the camp had its one and only short moment of peace while a traditional Scouts Own took place. Shortly after, it was back into activities before the final wind down and goodbyes with our Sunday BBQ lunch. Closing parade then followed and, of course, this meant the presentation of the awards earned throughout the weekend.



Photo 3: The amateur radio tent entrance – very well merchandised.

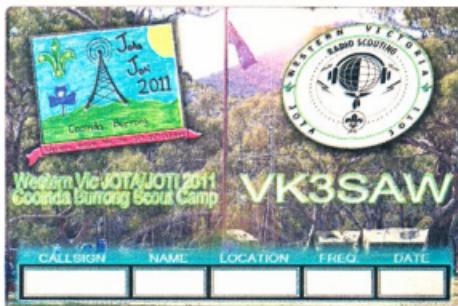


Photo 4: The VK3SAW QSL card.

To the 15 amateur radio operators who ran our station, all who are members of Scouting, congratulations on running a brilliant JOTA station this year! We look forward to another exciting year of Scout Radio in western Victoria for 2012.



Photo 5: The Western Vic JOTA team in 2011.

The WIA office will be closed from 4:00pm Friday, 23rd December & will reopen 10:00am, Monday, 16th January, 2012

Further details are available at our website [www.wia.org.au](http://www.wia.org.au)

The Wireless Institute of Australia extends to all radio amateurs very best wishes for the festive season.



# Spotlight on SWLing

Robin L Harwood VK7RH

2011 is almost over and at last propagation has dramatically improved of late. Signals as high as 30 MHz are being heard worldwide. I believe that monitors in Europe are hearing emergency services within the US around 33 MHz but because each channel has multiple registrations, it has been difficult to actually pinpoint where they are. I am also certain that the operators would not welcome reports from Europe or elsewhere, that their communications have been heard.

It has also been interesting because the allocations between 24 and 29 MHz have been flooded with illegal and unauthorised users, particularly in Russia and south east Asia. The Russians have been mainly heard on very rudimentary FM and are often small taxi services. Services in Thailand and Indochina have been heard here in Australia and are related to transport.

Although there have been reports of illegal CB activity, it is nothing like it was two or three decades ago. I guess that the cellphone and/or Skype have proved to be more reliable. I recently scanned across the old 27 MHz CB channels recently and there was nothing but hiss.

October 29 saw the demise of Deutsche Welle's programming on shortwave. The Tricomallee relay in Sri Lanka closed down, leaving the Kigali, Rwanda site as the only remaining operational outlet for the few remaining DW transmissions to Africa. At the same time it cut back its usage of the Babcock senders worldwide. The BBC World Service also has

scaled back their transmissions via HF with the eventual aim of quitting shortwave in its entirety by 2013. The historic Rampisham senders in Hampshire will close by December 31 and Wofferton in Lancashire has also reduced output. This leaves Skelton in Cumbria as the main shortwave outlet.

The global financial crisis finally did hit the Greek shortwave senders and I believe programming has been restricted to 12 hours between 1600 and 0400. This leaves only Spain, Romania, Bulgaria and Poland as some of the remaining European broadcasters on shortwave during the B-11 period. The latter did intend to migrate to MW but opted to remain on shortwave for now.

The VOA's parent body also decided against closing some language services after Congressional pressure. However, overall output has decreased. The Chinese are everywhere it seems on shortwave. They are quickly filling in empty spots on the dial after they were vacated by other stations.

Myanmar has vacated 7185.7 and moved to 5835. The station on 7189.7 is the Sri Lankan Broadcasting Service from Colombo. Programs are in Hindi and Tamil. I expect that the SLBC will start using the former DW senders in Tricomallee and possibly do away with older inefficient senders.

Whilst other organisations have been deserting shortwave, Afghanistan has reappeared on 6102 at 1600 and has been heard in English and other local languages.

Libya has also been noted on 11600, after the dramatic fall of Gaddafi, around 1500, in French and Magreb, a derivative of Arabic in north Africa.

I also note that Radio Australia will be on 19000 between 0100 and 0300 in English, from Shepparton. This makes it unique, as the only other station on the rarely used 15 metre allocation is an American religious station on 18990 and, I believe, using DRM.

Incidentally Christmas Eve marks the 40<sup>th</sup> anniversary of myself obtaining VK7RH. Sadly I do not get on these days as this retirement village precludes me from operating on HF and although I still have my 30 year old Icom IC-25 on two metres, there seems to be minimal activity there. I remember vividly my first hesitant contact on 40 metres with VK3 and my second contact was with Ron VK3AKC who calmed me down after my first QSO went awry. Three days later I got a personally delivered QSL card from him via Trevor VK7TB. Gee, four decades have passed since then. The hobby has certainly undergone massive changes over that time and is very different now.

In conclusion, allow me to wish you the compliments of the season and I hope to continue into 2012. Shortwave has changed but it will not disappear because there is always something on.

73 de VK7RH



## WIA Contest Website

Keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

[www.wia.org.au/members/contests/about](http://www.wia.org.au/members/contests/about)

# AMSAT

David Giles VK5DG  
vk5dg@amsat.org

## OSCAR turns 50

On the 12th of December, 1961, a mere four years after Sputnik-1 started the space age, Discoverer XXXVI was sitting at the top of a Thor-Agena B rocket. Its mission was to take reconnaissance photos and drop its film canister into the ocean for recovery (no electronic cameras in space back then). Tucked away underneath was a small satellite that was to have its own slice of history. OSCAR-I was the first amateur built satellite and the first ever secondary payload.

## OSCAR-I

The spark that started OSCAR-I came from an article by Don Stoner W6TNS in the April, 1959 issue of CQ. While he proposed a transponder, that would not happen commercially until 1962 (Telstar 1) or 1965 for amateurs (OSCAR-III). Even silicon transistors were a rarity, having only been invented in 1954. A homebuilt amateur satellite was a radical idea at the time. In 1960 a group of amateurs in California took this idea and formed the OSCAR Association. Within two years they had built, tested and launched a 5 kg satellite. A summary of the launch was written by one of the OSCAR Association members – Bill Orr W6SAI [1].

OSCAR-I transmitted a simple beacon. Its message was HI in CW that varied in speed with its internal temperature. The transmitter consisted of two transistors (oscillator and amplifier) at 72.5 MHz feeding a varactor doubler. The amplifier transistor (a 2N1506) had a *F<sub>t</sub>* of only 80 MHz and the one used in OSCAR-I was a prototype part from Fairchild. There were not any transistors that could put out much power at 144 MHz in 1961 [2]. They managed to get 140 mW out of this simple transmitter. There is an audio recording of the beacon available at the AMSAT website [3]. It is fairly rapid CW compared to modern OSCARS.

OSCAR-I lasted 22 days before re-entry and was heard by over 570 amateurs in 28 countries. According to the telemetry data received it spent most of the time working between 40 and 60 degrees Celsius. From this data improvements were made for OSCAR-II which operated between 10 and 20 degrees. OSCAR-I was built in the amateur's shacks and workshops. Vibration, shock and temperature testing was performed (after hours) at the Lockheed Palo Alto Research Laboratories [2]. The total cost of OSCAR-I has never been fully defined. While there is one quote of \$63 in parts, most of the time, effort and materials were donated by OSCAR Association members.

OSCAR-I also has the distinction of being the first secondary payload ever launched. According to one of the Project OSCAR pioneers, Lance Ginner K6GSJ, the most challenging aspect of OSCAR-I was getting through the political process of launching it [2]. That OSCAR-I was the first sub-satellite ejected from a spacecraft other than the primary payload compounded the problems of permission from various government agencies. Add to that that the rocket was owned by the US Air Force and you get the idea of the hoops they had to jump through. The biggest danger was that this was untried technology and if it failed then the primary mission would be jeopardised. From the third edition of the Radio Amateur Satellite Handbook I quote '*The ejection mechanism which had been subjected to detailed stress analysis and careful mechanical and thermal balancing, had been constructed around a \$1.15 spring from Sears'* [4].

For a mixture of cutting edge technology and hardware store parts, built in garages and tested at rocket research facilities, made by a not-for-profit organisation of volunteers and

launched by the military, OSCAR-I was quite an achievement.

A model of OSCAR-I made by the OSCAR association was donated to the Smithsonian Museum in 1963. It has been on display at the National Air and Space Museum near Washington DC, sharing room with the space shuttle Enterprise. Currently it is on loan for the AMSAT symposium.

The Project OSCAR website has pictures of OSCAR-I during construction, before and during launch [5]. To this day some amateur satellites (such as AO-7 and FO-29) use the letters HI to start their telemetry frames.

## FO-29 silent

Once again FO-29 has fallen silent. We can easily forgive the old bird after 15 years in space that its batteries and solar panels are not in peak condition. FO-29 has a cycle that puts it into long eclipse periods about every 4.25 years. On the 4th of October, FO-29's transmitter stopped due to its batteries going under voltage. At the time FO-29 was in eclipse for 27% of its orbit. Now, FO-29 does not switch itself on after giving the batteries a chance to recharge (unlike FO-20 did). The self-restart circuit proved itself unreliable during the last period of eclipses. So FO-29 has to be commanded on but this has revealed another problem. A report on the AMSAT mailing list said that the computer used to command FO-29 has stopped working. Finally FO-29 still has six months to go before it reaches time of maximum eclipses. So it is unlikely we will be able to use FO-29 very much during 2012.

## More new satellites

Two launches during October have seen six new satellites successfully launched. On the 12th of October an Indian rocket launched SRMSAT and JUGNU. SRMSAT is a nano-satellite with a CW beacon on 437.475 MHz.

At this stage not much is known about this satellite and its beacon is on over India. JUGNU is a cubesat with a camera and GPS. It has a CW beacon on 437.425 MHz that is on throughout its orbit. These satellites do not stay far from the equator.

On the 29<sup>th</sup>, a rocket from the Vandenburg base in California launched four cubesats. Aubiesat-1 is a student built cubesat to test solar panel protection film and do ionosphere tests. It has a 20 wpm CW beacon on 437.475 MHz [6]. Explorer 1 Prime (E1P) was a cubesat built to replicate the scientific mission of the first American satellite Explorer 1. Explorer 1 was the satellite used to discover the Van Allen belts. Unfortunately the original Explorer 1 Prime cubesat did not achieve orbit as there was a failure with the launch vehicle. However there was a twin satellite built at the time and this has been upgraded to flight level and is now orbiting the Earth.

E1P flight unit 2 measures the lower radiation belt and has transmits at 1200 baud on 437.505 MHz [7]. Radio Aurora Explorer-2 (RAX-2) is the successor to RAX-1, a 3U cubesat from the university of Michigan. RAX-2 will explore large plasma formations in the ionosphere. It has a 9600 baud telemetry downlink on 437.345 MHz [8]. Finally M-Cubed (Michigan Multi-purpose Minisat) is a 1U size cubesat with a camera. It transmits 9600 baud FSK on a frequency of 437.485 MHz [9].

## Final Pass

OSCAR-1 caught the imagination of many. By what I have read, it was met with plenty of opposition in and out of the amateur community, like so many pioneering ventures. Fifty years on the amateur satellites are still working. Now it is possible for anyone (with enough cash) to build their own satellite using pre-made assemblies. Getting it launched is still the biggest step.

## References

- [1] Orr, W., *Sixty Years of Radio Amateur Communication*, QST February, 1962. Reprinted in 'The Satellite Experimenter's Handbook', 1st Edition by Martin Davidoff K2UBC'.
- [2] *Between a Rock and Outer Space: Interview with OSCAR Pioneer Lance Ginner*, The AMSAT Journal September/October, 2006.
- [3] <http://www.amsat.org/amsat/features/sounds/firstsat.html>
- [4] Davidoff, M., *The Radio Amateur's Satellite Handbook*, 3rd Edition'.
- [5] <http://projectoscar.wordpress.com/project-oscar-history/>
- [6] AubieSat-1: <http://space.auburn.edu/>
- [7] Explorer-1[PRIME] <http://ssel.montana.edu/e1p/>
- [8] RAX-2: <http://rax.ingen.umich.edu/>
- [9] M-Cubed: <http://umcubed.org/>



### AMSAT Co-ordinator

Paul Paradigm VK2TXT  
email coordinator@amsat-vk.org

### Group Moderator

Judy Williams VK2TJU  
email secretary@amsat-vk.org

### Website

[www.amsat-vk.org](http://www.amsat-vk.org)

### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAV-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAV-VK monthly net

### Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeuds' and for a general 'off-bind' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz

VK2RIS Saddleback repeater: 146.975 MHz

VK2RBT Mt Boyne Repeater on 146.675 MHz

### In Queensland

VK4RIL Laidley repeater on 147.700 MHz

VK4RRC Redcliffe 146.925 MHz IRLP node

6404, EchoLink node 44666

### In South Australia

VK5TRM, Loxton on 147.125 MHz

VK5RSC, Mt Terrible on 439.825 MHz IRLP node

6278, Echolink node 399996

### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124

VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

# Summer VHF-UHF Field Day 2012

Contest Manager: John Martin VK3KMM

## Saturday and Sunday 14 and 15 January 2012

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

### Sections

A: Portable station, single operator, 24 hours.

B: Portable station, single operator, 8 hours.

C: Portable station, multiple operator, 24 hours.

D: Portable station, multiple operator, 8 hours.

E: Home station, 24 hours.

F: Rover station, 24 hours.

### Operating periods

Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

### Entering more than one section

If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

### Two operators

If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other.

### Multi-operator stations

Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

### Rover stations

The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

### General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

### Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

### Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

### Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

### Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

### Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

### Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to [vhfuhf@wia.org.au](mailto:vhfuhf@wia.org.au) (please note the change of email address). Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. Logs must be received by **Monday, 30 January 2012**. Early logs would be appreciated.

**FIELD DAY WEB SITE** – <http://www.wia.org.au/members/contests/vhfuhf/> This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.

# Ross Hull Memorial VHF-UHF Contest 2012

Contest manager: John Martin VK3KM

The next Ross Hull Contest will run through the month of January 2012. Logs are due by Monday, February 13.

If you participate in the Summer VHF-UHF Field Day, remember that you can count Field Day contacts (one per station per band per day) in your Ross Hull Contest log.

## The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

## Duration

0000 UTC January 1, 2011 to 2400 UTC January 31, 2012.

In Eastern Summer Time, that is 11 a.m. on January 1 to 11 a.m. on February 1.

## Sections

A: All bands, non-digital modes.

B: All bands, digital modes.

Digital modes are defined as those in which the decoding of the received signal is done by a computer.

Entrants may submit logs for one or both sections.

## General Rules

One callsign and one operator per station. Stations may operate from any location. You may claim one contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange. All rulings of the contest manager will be accepted as final.

## Contest Exchange

For Section A, Entrants must exchange RS (or RST) reports plus a serial number. Serial numbers need not be consecutive.

For propagation modes such as meteor scatter or short-lived sporadic E openings, it is sufficient to exchange

Date	6 m	2 m	70 cm	23 cm	etc
Day 1	xxx	xxx	xxx	xxx	xxx
Day 2	xxx	xxx	xxx	xxx	xxx
etc.					
Total	xxx	+	xxx	+	xxx = xxx (GRAND TOTAL)

callsigns plus two further digits that cannot be predicted by the other station.

For Section B, exchange callsigns plus two further digits that cannot be predicted by the other station.

While not an essential part of the contest exchange, Maidenhead locators may also be exchanged as an aid to distance calculations.

## Logs

Logs must contain the following for each contact:

- Date and UTC time.
- Frequency and callsign of station worked.
- Reports and serial numbers sent and received.
- Approximate location or grid locator of station worked.

Separate scoring columns for each band would be helpful.

## Scoring

Scoring will be based on the best seven (7) UTC days nominated by the entrant.

For each contact, score 1 point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 – 199 km: 2 points, etc.)

Multiply the total by the band multiplier as follows:

Then total the scores for all bands.

6 m	2 m	70 cm	23 cm	Higher Bands
x 2	x 3	x 5	x 8	x 10

## Cover Sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered.
- A scoring table set out as the example below.

- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals.

A cover sheet and scoring table has been included in the postings on the WIA web site. Copies can also be obtained from the e-mail address given below.

## Penalties

Minor errors may be corrected and the score adjusted. Repeated use of recognised DX calling frequencies (especially when the reports indicate strong signals) may lead to disqualification. Inclusion of any false log entries will lead to disqualification.

## Entries

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to [rosshull@wia.org.au](mailto:rosshull@wia.org.au). (Please note the change of email address). Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, MDB, PDF, or any Open Document format.

Logs must be received by **February 13, 2012**. Early logs would be appreciated.

## Note on Calculating Distances

Absolute accuracy is not required. You just need to know whether each station is above or below the nearest multiple of 100 km, so you can use a compass to draw 100 km circles around your location on a map. A more accurate method is to use six-digit Maidenhead locators and a computer program that can be obtained from the WIA web site.



# Contests

Phil Smeaton VK4BAA

## Contest Calendar

December	2/4	ARRL 160 m Contest	CW
	4	RTTY Melee	RTTY
	10/11	ARRL 10 m Contest	CW/SSB
	17	OK DX RTTY Contest	RTTY
January		Ross Hull Memorial VHF Contest (VHF/UHF)	
	14/15	Summer VHF/UHF Field Day Contest	CW/SSB/FM

Welcome to this month's Contest column.

### Oceania CW 2011

The weekend following the SSB leg of the contest, the bands sparked with the dulcet tones of CW. Steve VK3TDX fired-up the rig and fitted house guests in between the far more important task of contesting. Maybe I have got that the wrong way round! Oh, never mind! Anyway, Steve reported a lively response to his CQs, often resulting in a blurry monotone mess due to a 'point and click' approach involving the spotter network. So, there were lots of stations transmitting on exactly the same frequency, making life difficult. Plenty of DX reported, so Steve's 400+ QSOs earned him a few DXCC points as well as around 406,000 claimed points for the contest.

Vlad VK2IM had 900 QSOs in the log after 10 hours or so, concentrating mainly on 15 m, 20 m and 40 m. 10 m was a non-performer for Vlad and LF noise curtailed operation for him unfortunately. Long path EU routes did not seem to want to come out to play in VK2 until later in the piece, leaving Vlad little option but to mop-up EU on 40 m towards the end of the contest. Almost 1500 Qs and a claimed score of just over 3,100,000 points. Not bad at all. Andy VK5MAV found the propagation to be favourable from his QTH, but failed to let his rig know about the bands as it developed a nasty fault after a short while – rendering Andy's contesting somewhat moot.

Patrick VK2PN mopped-up Qs to a total claimed score of just under the one million mark, with 15 m the 'money band' for him. Patrick also experienced a high number of EU stations netting on exactly the same frequency, which slowed the rate somewhat.

John VK4EMM joined forces with travelling wilbury Martin VK7GN, who was in the area for a few days. A formidable CW team, they operated M/1 as VK4CT and netted 1600+ QSOs for a claimed score of just over 4.5 million points despite suffering from an awful storm just prior to kick-off. With over 1000 Qs logged during the first half of the contest, the dynamic duo got cautious so as to not pop the champagne cork just yet – and that was a very wise decision! The second part of the contest was harder work, with a further 600 stations taking about the same time to work.

Alan VK4SN braved the contest for a few hours during the weekend to bag 420 QSOs for a claimed score of 371,000 points. More QSOs would have ensued no doubt if the Bundy Bear (allegedly) had stayed at home and not tampered with Al's alarm clock, which resulted in Al missing the 4 am wake-up call to finish off the contest.

A fine effort by all and it is good to see VK represented on the bands. There is plenty of opportunity to join them in 2012 of course – I will hopefully be doing so if I pull my finger out and polish-up my CW. Yeah, I know, I have been saying that for ages...

### CQ WW SSB 2011

Nothing much to report on this weekend's CQWW SSB contest, which just ended yesterday as I pen this ode. It is not as if the bands did anything special. Well, unless you count opening completely on HF that is! As an example, the ten metre band went absolutely ballistic. The cluster spot list was as long as your arm and DX Summit started to struggle to cope with it all. Requesting a list of the last 10,000 spots for 10 m did not even clear the first day!

The claimed 10 m QSO tally for some of the big M/M stations is around the 3000-4000 mark. Other tallies for other categories for 10 m are around the 2000-3000 area, which is fantastic indeed.

Chris VK3FY found himself in Perth in-transit to elsewhere and took the opportunity of a delay to play radio with NCRG who operated as VI6NC. Being initially limited as regards operator

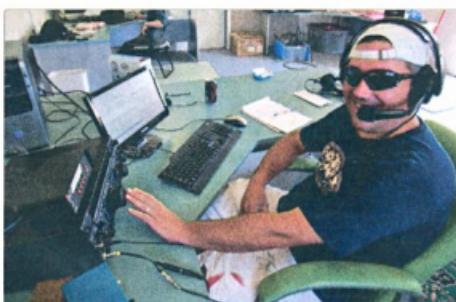


Photo 1: Andy VK4NM operating the CQ WW SSB contest as a member of the VK4KW team.

headcount, the lads had permission to use the special prefix for CHOGM in Perth and the prefix may have helped increase the QSO tally. This callsign selection effectively limited operation somewhat as regards time at least, as the callsign 'expired' eight hours or so prior to the end of the contest, but this might have been offset by the prefix hunters calling in for a QSO. Regardless, they netted over 2000 Qs on 10 m, and the whole log has a claimed score for their inaugural M/2 effort of around the seven million mark for over 5000 QSOs. Splendid!

Laurie VK7ZE took part and was eager to try his shiny new 40 m antenna. LF was not in wonderful shape however – 80 m and 160 m did not really want to come out to play. Laurie bagged over 1000 Qs, being just shy of 400 Qs on 40 m, for a claimed score of almost one million points.

Tony VK3TZ suffered from horrendous power line noise, but still managed to tally a claimed score of just over 200,000 points in the Low Power section. Steve VK3TDX logged over 2000 Qs for his all band entry and a claimed score of more than two million points.

Ken VK4QH also had fun on 10 m, grabbing over 1600 Qs for a total claimed score of 2.1 million when the other bands were also tallied. Like most stations in southern VK4, Ken suffered from a very nasty storm which hit on the Sunday evening. VK4KW also suffered badly from this, in that a logging PC got spiked (as well as some other hardware in the station) and made a dreadful mess of the log. Photo 1 shows Andy VK4NM enjoying a leisurely pile-up, while seemingly enduring a high degree of brightness from the PC screen. Photo 2 shows John VK4EMM prior to the storm hitting the main logging PC, which soon wiped the smile off John's face as the log was at risk of destruction!

Catherine VK4GH also came out to play, and used the contest to increase her tally of zones and DXCC entities before the storm struck. No doubt, there will be more news on this contest after the AR publication date cut-off is reached. If so, I will report next month. By the time AR lands on the doormat, CQ WW will have been

finished for a few days (at least) and thoughts would be turning towards CQ WW CW instead. Hopefully, the bands will let us play again!

### Contest Free Zones

There has been lots of talk about contest free zones of late. Non-contesters turn on their radios to use them and find the band/s crammed with stations contesting, leaving very little free space for rag chewing, nets and everything else that is enjoyed on HF. When we are talking about wall-to-wall contest activity, we are really talking about a limited number of major international contests: ARRL DX, WPX, IARU and CQ WW, for example. If we look – theoretically – at 20 metres SSB, you can bet that the frequency range from 14.112 to 14.350 will be filled during these events. This happens on 10 out of 104 weekend days out of a year. That is less than 10% of all weekend time. The remaining 90% of the weekends have ample spectrum for SSB users on 20 m SSB. Even where you have events like IOTA, the loading on the band segment is such that there is ample free space for non-contest activities. Irrespective of the loads that are borne by 20 metres SSB during one of the big international contests, the fact remains that there are significant swaths of usable amateur spectrum that are contest free. The 20 metre CW segment is contest free during CQWW SSB for example; the 15 metre CW is contest free during WPX SSB, and so on. In addition, the WARC bands are contest free 24/7, 365 days a year.

On the other hand, if a contest features a 'contest free zone' within the rules, then it ought to be followed. By breaking the contest rules in that way, you only give ammunition to the anti-contest lobby. Contesters activate the bands and we also have to share them with the non-contesters.

No matter what the reason is, to push the non-contesters completely

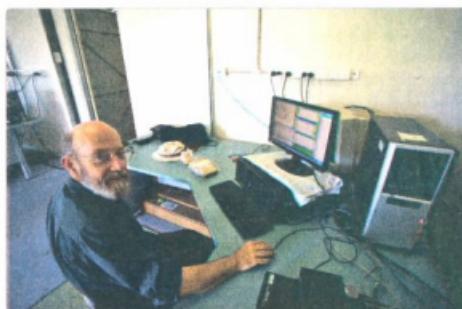


Photo 2: John VK4EMM, another of the VK4KW team, in good spirits prior to the storm.

off of a given band, especially when operating a non-traditional mode in certain band segments is to risk antagonising and alienating other operators on the bands. However, I have a car that I am very fond of and I like to drive it. I like to drive it at the legal limit on the highway, often to the beach. But sometimes, just when I want to drive it, there are other people doing exactly the same thing, enjoying themselves on the road in their car. They get in my way, change lanes strangely and sometimes even go slower than I do. Should I demand that they not be permitted to drive whenever I want to use the highway? Worse than that, when I finally get to the beach I often find that my 'spot' has been taken by someone. Do they not know that I always enjoy the sand at that spot? Sometimes, things are busy. Sometimes, that means there is no room at the inn. Sometimes, we have just got to time our trip to the beach at a different time, or drive on a different road, or use a different beach. Or, it *might* be best to simply tolerate the fact that other people might also want to do similar things as us, when we want to do it.

If you have any contest related material for inclusion within the column, topics that you would like covered or, even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au). See you on the bands.

73 de Phil VK4BAA

# VK7news

Justin Giles-Clark VK7TW  
Email: vk7tw@wia.org.au

## 2011 JOTA in VK7

Thanks to the Northern Tasmania Amateur Radio Club JOTA coordinator Peter Dodd VK7KPC for the following information. NTARC's major JOTA activity was on Saturday, 15 October at the Kings Meadows Scout Hall from 9 am to 8 pm. There were nine groups who attended for about 45 minute sessions, with three of the larger groups having double sessions. HF contacts were made to VK2, 3, 4, 5, 6 and 7. Other activities included CB walkie talkies, Morse code lights, a battleship game using an intercom system plus word find and crossword puzzles with JOTA and radio themes. Thanks to Tony VK7YBG who managed to get the IRLP node up and going in time for JOTA. On the day, thanks go to Norm VK7KTN, Kevin VK7HKN, Tony VK7YBG, Ann VK7FYBG (for the supply of scones, jam and cream) and Peter VK7KPC for their efforts.

Thanks to Tony VK7AX for the north-west JOTA information. Paton Park was the location where five amateurs provided equipment and their time to operate. There was focus on using EchoIRLP nodes 6124 and 6616 with several HF contacts also being made.

*Photo 1: Rod VK7TRF, OM Michael VK7FMRS and Scout daughter Jessica. Photo courtesy VK7ARN.*



Thanks to Neil VK7ZNX, Ross VK7WP, Paul VK7HPD, Jim VK7JH and Tony VK7AX for their time and effort.

Thanks go to Nicole VK7FNJS from the 1st Huonville Scout Troop for the information about the WICEN Tasmania (South) JOTA activation. There were seven Scouts from the 1st Huonville troop who participated over the weekend from a station set up under canvas at an excellent camp site on Peter VK7TPE's property near Coningham. Forty individual Scout contacts were made on HF bands. Vegemite flavoured Smiths Chips were such a hit during the night that the troop renamed itself to the 'Vegemite Chip Patrol'! Thanks to Peter VK7TPE and XYL Maureen for the camp site, WICEN South's Rod VK7TRF, Garry VK7JGD, Roger VK7ARN, Michael (and Dad) VK7FMRS for all their help and equipment.

## Repeater and IRLP News

We have a new 70 cm repeater VK7RDS in Hobart, thanks to Damien VK7DS. VK7RDS operates on 439.750 MHz with a negative 5 MHz offset and no tone is required. VK7RAD 6 m repeater is back on air thanks to Alan VK7KAJ and Dave

VK7DM and continues to broadcast the Sunday 0900 WIA National and VK7 Regional News broadcasts. IRLP Node 6700 which resides on VK7RAA is back on air thanks to Tony VK7YBG. The callsign used is the NTARC club call of VK7TAZ.

## Northern Tasmanian Amateur Radio Club

October 12 saw many members and families trekking to the Mt Barrow Forest Appreciation and Interpretation Centre for a BBQ. From reports it was relatively warm and

the fire was only lit after 6 pm; the stars twinkled from a lack of the city lights and the discussion drifted to many topics along with many toasts! Many stayed overnight in their motor homes.

Please note that the Monday and Friday coffee morning at Friends Cafe in Jimmy's Shopping Complex, Charles Street, Launceston has moved time to 10.30-11.30 am, and do not forget that on the final Monday of the month it is at the fine establishment of David VK7YUM and Norma VK7FOOD in the main street of Lilydale.

At the time of writing, WICEN in the North of VK7 were preparing to assist the State Equine Endurance Championship along with WICEN Tasmania (South). This state event was held on the east coast at St Helens over 26 and 27 November. This event is in preparation for the Tom Quilty Australian national equine event which is also at St Helens over the period 8-10 June, 2012.

## North West Tasmanian ATV Group (NWTATVG)

On 8 October members and friends of NWTATVG met at the QTH of Jim VK7JH and XYL Janine, at Stowport for a general meeting and to hear a fascinating slide show of Peter VK7IY's involvement with the oil and gas rigs in Bass Strait. Peter works on the supply ships which ship material and supplies to and from the oil rigs. Thanks Peter for a very interesting talk and thanks to Jim and Janine for opening up their QTH.

Tony VK7AX has converted a number of videos and films for transmission on ATV and has shown a range of these on ATV in the NW and via the batc.tv streaming site (VK7AX Stream). These films have included: Amateurs of the North West, WIA News Readers of the Past and also rebroadcasts of the REAST DATV Experimenters nights on a Wednesday night.

## Radio and Electronics Association of Southern Tasmania

Congratulations to Steven Honson formerly VK7FSNH who has gained his Advanced Certificate and is hoping for the call VK7SH. The five New Town High students who received a scholarship from REAST provided for by the WIA grants scheme are studying furiously in preparation for their Foundation licence assessment.

October 5 saw a wonderful presentation by Winston VK7WH who took us through his trip to the Dayton Hamvention this year and then his tour of the National Museum of the United States Air Force, also



Photo 2: Winston VK7WH fresh back from Dayton.

at Dayton. Winston then finished off with a presentation of the Logic8 logging software. Thanks Winston for a great presentation.

The REAST DATV experimenter's nights are continuing to be popular and we have been undertaking field strength improvements thanks to a donation by Joe VK7JG, thanks Joe. Our virtual batc.tv (stream VK7OTC) audience has been steadily growing and we have been presenting a broad range of items which included robotics component demonstrations, video equipment, studio tours, Arduino projects and surface mount soldering and desoldering techniques with an on camera demonstration of desoldering and soldering a 100 pin quad flat pack IC using hot air and solder reflow technique.



# RD Contest Results corrections

Peter Harding VK4OD

Unfortunately, some gremlins worked their way into the results published last month. The HF Single CW 2-0-1-2 tabled appeared twice in the magazine (*probably my error – sorry. Ed.*), and some callsigns appearing twice (which was my mistake).

### HF Single CW

#### 2-0-1-2

Call Sign	Score
1st VK3QB	208
2nd VK4WMM	160
3rd VK5MGY	152

### HF Single Op Phone

#### 2-0-1-1

Call Sign	Score
VK6IR	1098
VK4QH	657
VK5PAS	503
ZL2U	489
VK3LDR	464
VK2KF	410
VK6NS	375
VK4GH/P	344
VK2BGL	335
VK3AVV	316

### VHF Single Op Phone

#### 1-0-1-1

Call Sign	Score
VK6ZRW	801
VK6HC	647
VK6BDO	646
VK6KH2	585
VK6MAB	528

I will post out corrected Certificates to those affected. The following are the correct tables for the affected categories.

VK6HAD	524	VK6ZKO	150
VK6HX	500	VK5ZD	144
VK6WIE	465	VK7ZGK	140
VK6AXB	426	VK5MK	130
VK6CSW	393	VK7HK	128
VK6LZ	353	VK7RM	125
VK7TW	351	VK6CN	125
VK7DG	319	VK6CG	122
VK7HDM	311	VK3JK	121
VK6FLAB	304	VK6FJA	120
VK7OO	299	VK6YOY	119
VK6ST	289	VK6USB	111
VK6SKY	257	VK5KLD	100
VK6HDX	250	VK6RO	69
VK6ZM	238	VK6LZL	65
VK6ZM	238	VK6OTN	65
VK6ZM	238	VK5ZKK	65
VK6LD	236	VK6ARO	63
VK6WJ	225	VK6CRO	63
VK6FDX	221	VK6SIX	63
VK6JP	220	VK4JRO	62
VK6LV	219	VK3FJOR	62
VK6LUX	218	VK6VHF	50
VK6AH	215	VK5ZT	49
VK6GA	206	VK4KRX	43
VK3MZ	178	VK5AMW	40
VK7BEN	173	VK6AR	39
VK5KBJ	172	VK4XZ	34
VK6KMC	171	VK4UD	33
VK6GD	157		

VK5KC	33
VK5KDK	31
VK5AVQ	31
VK3KTM	29
VK6AN	29
VK7JGD	29
VK3FAAR	25
VK4FATT	24
VK6OE	24
VK4GLC	21
VK6YF	20
VK4ZA	19
VK6TS	19
VK3JWT	18
VK6KG	16
VK7HW	16
VK4ZBV	15
VK5FCJM	14
VK5FCJM	14
VK4MAX	12
VK4ZW	11
VK3FEZZ	8
VK1EY	6
VK7TL	6
VK3ASU	4
VK1XYZ	3

# Gridsquare Standings at 17 October 2011

144 MHz		Terrestrial		144 MHz		EME		432 MHz		Terrestrial		432 MHz		
VK2FLR	Mike	116		VK6KZ	Wally	20		VK3BDL	Mike	34 SSB		VK4EME	Allan	53
VK3NX	Charlie	107		VK2ZT	Steve	19 Digi		VK3WRE	Ralph	33 SSB		VK4EME	Allan	48 Digi
VK2KU	Guy	102		VK4EME	Allan	19 SSB		VK3PF	Peter	32		VK4EME	Allan	37 Digi
VK3PF	Peter	90		VK3AL	Alan	18 SSB		VK3PF	Peter	30 SSB		VK4CDI	Phil	37 Digi
VK3HZ	David	89		VK6KZ/p	Wally	16		VK5BC	Brian	26 SSB		VK7MO	Rex	10
VK2ZT	Steve	82 SSB		VK2EI	Neil	12 Digi		VK1DA/p	Andrew	24		VK3KH	Michael	9 Digi
VK5AKK	Phil	82 SSB		VK4EME	Allan	12 Digi		VK2MER	Kirk	24 SSB		VK3VG	Trevor	20 SSB
VK2ZAB	Gordon	78 SSB		VK5APN	Wayne	12		VK3KH	Michael	22 SSB		VK5BC/p	Brian	20 SSB
VK2DVZ	Ross	77 SSB		VK2AMS	Mark	10 Digi		VK7MO	Rex	20		VK7MO	Rex	20
VK3PY	Chas	77 SSB		VK2DVZ	Ross	9 Digi		VK2AMS	Mark	18 SSB		VK2AMS	Mark	18 SSB
VK3BDL	Mike	68 SSB		VK2KOL	Colin	9 Digi		VK2TK	John	18		VK2TK	John	18
VK3II	Jim	66		VK1WJ	Waldis	7 SSB		VK3ALB/p	GARC Team	18 SSB		VK3ALB/p	GARC Team	18 SSB
VK3QM	David	66 SSB		VK5APN	Wayne	7 Digi		VK7MO	Rex	18 SSB		VK7MO	Rex	18 SSB
VK7MO	Rex	66		VK5APN	Wayne	6 SSB		VK2TK	John	17 SSB		VK2TK	John	17 SSB
VK2EI	Neil	65		VK6HK	Don	6 Digi		VK3AKK	Ken	15 SSB		VK3AKK	Ken	15 SSB
VK3BJM	Barry	64 SSB		VK1WJ	Waldis	5 CW		VK3BG	Ed	15 SSB		VK3BG	Ed	15 SSB
VK2AMS	Mark	63 SSB		VK4AE	Denis	5 SSB		VK3TLW	Mark	15 SSB		VK3TLW	Mark	15 SSB
VK2TK	John	62		VK4JAZ	Grant	4 FM		VK3ZUX	Denis	15 SSB		VK3ZUX	Denis	15 SSB
VK3II	Jim	62 SSB		VK2GG	Dan	3		VK4KZR	Rod	15		VK4KZR	Rod	15
VK2MER	Kirk	61 SSB		VK3DXE	Alan	2 Digi		VK4CDI	Phil	14		VK4CDI	Phil	14
VK4FNQ	John	59		VK3QM	David	1 Digi		VK6KZ	Wally	13		VK6KZ	Wally	13
VK3WRE	Ralph	58 SSB		VK4FNQ	John	1 FM		VK2EI	Neil	12 SSB		VK2EI	Neil	12 SSB
VK4FNQ	John	58 SSB		144 MHz	EME			VK2KOL	Colin	12 SSB		VK2KOL	Colin	12 SSB
VK3PF	Peter	56 SSB		VK2KU	Guy	454		VK4TJ	John	11 SSB		VK4TJ	John	11 SSB
VK5BC/p	Brian	55 SSB		ZL3TY	Bob	392		VK2TG	Bob	10 SSB		VK2TG	Bob	10 SSB
VK5BC	Brian	53 SSB		VK3AXH	Ian	265 Digi		VK3AL	Alan	10 SSB		VK3AL	Alan	10 SSB
VK3KH	Michael	52 SSB		VK4CDI	Phil	247 Digi		VK3ECH	Rob	10 SSB		VK3ECH	Rob	10 SSB
VK3ZLS	Les	51 SSB		VK5APN	Wayne	192		VK4FNQ	John	10 SSB		VK4FNQ	John	10 SSB
VK3HY	Gavin	49		VK5APN	Wayne	189 Digi		VK6KZ/p	Wally	8		VK6KZ/p	Wally	8
VK4CDI	Phil	49		VK7MO	Rex	157 Digi		VK3KH	Michael	7 Digi		VK3KH	Michael	7 Digi
VK3VG	Trevor	46 SSB		VK2FLR	Mike	120		VK3UH	Ken	7		VK3UH	Ken	7
VK7MO	Rex	46 SSB		VK3II	Jim	87 Digi		VK7MO	Rex	7 Digi		VK7MO	Rex	7 Digi
VK7MO	Rex	46 Digi		VK2AWD	David	82 Digi		VK4EME	Allan	6 SSB		VK4EME	Allan	6 SSB
VK3AKK	Ken	45 SSB		VK2DVZ	Ross	81 Digi		VK1WJ	Waldis	5 SSB		VK1WJ	Waldis	5 SSB
VK4CDI	Phil	45 SSB		VK3KU	Michael	50 Digi		VK4CDI	Phil	5 Digi		VK4CDI	Phil	5 Digi
VK4KZR	Rod	43		VK3DDU	Paul	39 Digi		VK2DVZ	Ross	4 Digi		VK2DVZ	Ross	4 Digi
VK4TJ	John	41 SSB		VK2ZT	Steve	28 Digi		VK2ZT	Steve	4 Digi		VK2ZT	Steve	4 Digi
VK3EJ	Gordon	40 SSB		VK3HZ	David	19		VK3PF	Peter	4 Digi		VK3PF	Peter	4 Digi
VK3PF	Peter	40 Digi		VK3AXH	Ian	8 CW		VK3PY	Chas	4 Digi		VK3PY	Chas	4 Digi
VK2TG	Bob	39 SSB		VK3NX	Charlie	5 CW		VK3QM	David	4 Digi		VK2AMS	Mark	3 Digi
ZL3TY	Bob	37		VK4EME	Allan	5 Digi		VK3DXE	Alan	3 SSB		VK3DXE	Alan	3 SSB
VK3UH	Ken	36		VK3AXH	Ian	3 CW		VK4AIG	Denis	3 SSB		VK4AIG	Denis	3 SSB
VK2TK	John	35 SSB		VK2ZAB	Gordon	57 SSB		VK4JAZ	Grant	3 FM		VK4JAZ	Grant	3 FM
VK2KOL	Colin	34 SSB		VK3PY	Chas	51 SSB		VK2GG	Dan	2		VK2GG	Dan	2
VK6HK	Don	34		VK3NX	Charlie	50 SSB		VK2KOL	Colin	1 Digi		VK2KOL	Colin	1 Digi
VK3II	Jim	33 Digi		VK3QM	David	50 SSB		VK2TK	John	1 Digi		VK2TK	John	1 Digi
VK3ZUX	Denis	33 SSB		VK3ZLS	Les	40 SSB		432 MHz	EME			432 MHz	EME	
VK1DA/p	Andrew	31		VK3BJM	Barry	39 SSB		VK4EME	Allan	53		VK4EME	Allan	53
VK1WJ	Waldis	28		VK3HZ	David	39		VK4EME	Allan	48 Digi		VK4EME	Allan	48 Digi
VK2TK	John	27 Digi		VK3PY	Chas	51 SSB		VK4CDI	Phil	37 Digi		VK4CDI	Phil	37 Digi
VK3DXE	Alan	24 SSB		VK3NX	Charlie	50 SSB		VK7MO	Rex	10		VK7MO	Rex	10
VK1WJ	Waldis	23 Digi		VK3QM	David	50 SSB		VK4EME	Allan	9 Digi		VK4EME	Allan	9 Digi
VK3TLW	Mark	23 SSB		VK3ZLS	Les	40 SSB		VK7MO	Rex	8 CW		VK7MO	Rex	8 CW
VK4CDI	Phil	23 Digi		VK3BJM	Barry	39 SSB		VK3NX	Charlie	5 CW		VK3NX	Charlie	5 CW
VK4EME	Allan	23		VK3HZ	David	39		VK3ZUX	Ian	4 Digi		VK3ZUX	Ian	4 Digi
VK3ALB/p	GARC Team	22 SSB		VK3PY	Chas	51 SSB								
VK3BG	Ed	22 SSB		VK3NX	Charlie	50 SSB								
VK3KH	Michael	21 Digi		VK3QM	David	50 SSB								
VK3ECH	Rob	20 SSB		VK3ZLS	Les	40 SSB								

VK3HZ	David	4
VK3KH	Michael	3 Digi
VK3NX	Charlie	3 Digi
VK2ZT	Steve	2 Digi
VK5BC	Brian	1
<b>1296 MHz</b>	<b>Terrestrial</b>	
VK3PY	Chas	41 SSB
VK3QM	David	41 SSB
VK3NX	Charlie	37 SSB
VK2ZAB	Gordon	29 SSB
VK2DVZ	Ross	26 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	25
VK5AKK	Phil	25 SSB
VK3BJM	Barry	22 SSB
VK3PF	Peter	22
VK3PF	Peter	20 SSB
VK3WRE	Ralph	20 SSB
VK3KWA	John	19
VK3BDL	Mike	18 SSB
VK3HZ	David	18
VK3KH	Michael	17 SSB
VK3ALB/p	GARC Team	16 SSB
VK2ZT	Steve	13 SSB
VK3VG	Trevor	12 SSB
VK4KZR	Rod	12
VK3BG	Ed	11 SSB
VK5BC	Brian	11 SSB
VK7MO	Rex	11 SSB
VK1DA/p	Andrew	10
VK2TK	John	10 SSB
VK2AMS	Mark	9 SSB
VK5BC/p	Brian	9 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3UH	Ken	7
VK2MER	Kirk	6
VK3ECH	Rob	6 SSB
VK3ZUX	Denis	5 SSB
VK4CDI	Phil	5
VK4CDI	Phil	5 SSB
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK3KH	Michael	4 Digi
VK6KZ	Wally	4
VK4EME	Allan	3 SSB
VK7MO	Rex	3 Digi
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK2TG	Bob	2
VK3PF	Peter	2 Digi
VK3QM	David	2 Digi
VK4AIG	Denis	2 SSB
VK4CDI	Phil	2 Digi
VK4FNQ	John	2 SSB
VK2DVZ	Ross	1 Digi
VK2ZT	Steve	1 Digi
ZL3TY	Bob	1 SSB
<b>1296 MHz</b>	<b>EME</b>	
VK4CDI	Phil	71
VK4CDI	Phil	57 Digi
VK3NX	Charlie	56 CW
VK7MO	Rex	41
VK7MO	Rex	36 Digi
VK4CDI	Phil	26 CW

VK2AMS	Mark	4 Digi
VK4CDI	Phil	2 SSB
<b>2.4 GHz</b>	<b>Terrestrial</b>	
VK3PY	Chas	18 SSB
VK3NX	Charlie	17 SSB
VK3QM	David	17 SSB
VK3AKK	Ken	15 SSB
VK3WRE	Ralph	11 SSB
VK3ALB/p	GARC Team	7 SSB
VK3PF	Peter	7 SSB
VK3KH	Michael	6 SSB
VK3HZ	David	5
VK4KZR	Rod	4
VK6KZ	Wally	4
VK2EI	Neil	3 SSB
VK3BJM	Barry	3 SSB
VK3KH	Michael	3 Digi
VK1DA/p	Andrew	2
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK3PF	Peter	2 Digi
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB
<b>2.4 GHz</b>	<b>EME</b>	
VK3NX	Charlie	41 CW
VK7MO	Rex	14
VK7MO	Rex	10 Digi
<b>3.4 GHz</b>	<b>Terrestrial</b>	
VK3NX	Charlie	14 SSB
VK3QM	David	14 SSB
VK3WRE	Ralph	8 SSB
VK3PF	Peter	6 SSB
VK6KZ	Wally	4
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK2AMS	Mark	1 Digi
VK2EI	Neil	1 SSB
VK2EI	Neil	1 Digi
<b>3.4 GHz</b>	<b>EME</b>	
VK3NX	Charlie	16 CW
<b>5.7 GHz</b>	<b>Terrestrial</b>	
VK3NX	Charlie	14 SSB
VK3QM	David	12 SSB
VK3PY	Chas	10 SSB
VK3WRE	Ralph	9 SSB
VK3PF	Peter	7 SSB
VK3ALB/p	GARC Team	6 SSB
VK6KZ	Wally	4
VK2GG	Dan	3
VK3BJM	Barry	2 SSB
VK3PF	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK2AMS	Mark	1 SSB
VK2EI	Neil	1 SSB
VK3ZUX	Denis	1 SSB
<b>5.7 GHz</b>	<b>EME</b>	
VK3NX	Charlie	24 CW
<b>10 GHz</b>	<b>Terrestrial</b>	
VK3HZ	David	61
VK3HZ	David	22 SSB
VK3PY	Chas	19 SSB
VK3QM	David	17 SSB
<b>10 GHz</b>	<b>Terrestrial</b>	
VK3NX	Charlie	16 SSB
VK3PF	Peter	11 SSB
VK3WRE	Ralph	11 SSB
VK6BHT	Neil	9 SSB
VK3ALB/p	GARC Team	7 SSB
VK2EI	Neil	6
VK6KZ	Wally	5
VK2EI	Neil	3 Digi
VK2EM	Bruce	3 SSB
VK3KH	Michael	3 SSB
VK3KH	Michael	3 Digi
VK3TLW	Mark	3 SSB
VK7MO	Rex	3
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK3BJM	Barry	2 SSB
VK3UH	Ken	2
VK3ZUX	Denis	2 SSB
VK4KZR	Rod	2
VK1DA/p	Andrew	1
VK3BG	Ed	1 SSB
VK3NX	Charlie	1 Digi
<b>10 GHz</b>	<b>EME</b>	
VK3NX	Charlie	16 CW
<b>24 GHz</b>	<b>Terrestrial</b>	
VK3NX	Charlie	4 SSB
VK3QM	David	3 SSB
VK6BHT	Neil	3 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK6KZ	Wally	2
VK3WRE	Ralph	1 SSB
<b>47 GHz</b>	<b>Terrestrial</b>	
VK3NX	Charlie	4 SSB
VK3QM	David	4 SSB
VK2GG	Dan	2
<b>76 GHz</b>	<b>Terrestrial</b>	
VK3KH	Michael	1 SSB
<b>122 GHz</b>	<b>Terrestrial</b>	
VK3KH	Michael	1 SSB
<b>474 THz</b>	<b>Terrestrial</b>	
VK3WRE	Ralph	3
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7TW	Justin	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at <http://vhfdx.radiocorner.net> - click on Gridsquares.

Next update of this table will close on or about 17 February 2012.

Stations who do not confirm their status for more than 12 months may be dropped from the table.



# ALARA

Margaret Blight VK3FMAB – Publicity Officer

So another year is drawing to a close. We may be asking ourselves where did time go? I cannot believe that twelve months has passed so quickly! Didn't something similar happen last year? For many of you this year may have contained a mixture of joys and sadness, expectations and disappointments. Whatever the mixture that has been your allotted portion; I do hope that Christmas is a happy occasion for you this year and that the New Year brings with it the promise of new opportunities and positive challenges to be met.

Jenny VK5FJAY is a St John Ambulance volunteer who carried out an assignment at the Australian MotoGP at Phillip Island. She reports:

We left Adelaide on Tuesday 11th October to travel to a suburb out of Melbourne to sleep Tuesday night in preparation to be up bright and early to travel in a convoy of four St John vehicles to Phillip Island. We had to travel on toll ways which we found to be interesting. The scenery on the way was lovely and green. We arrived at our camp site at about 5 pm to settle in to our dorms, and then went shopping for office supplies. Everything on the island seemed super expensive – they had a monopoly for the weekend. I met up with old friends and made some new ones.

On the Thursday just three of us were taken to the track side camp site, as this is where the bikies were setting up their camp. Friday I was inside the track and discovered that bees or wasps were coming into the first aid post. I spoke to an official and by the morning it was fixed. The apiarist took away the Queen and hive, but she then came back again and thus she and her hive were then moved 'a long way away'.

On Saturday I was assigned to a post near the Start and Finish line. On the Sunday it was reported that



*Photo 1: Jenny VK5FJAY in action in the communications post.*

there were 30,000 attending – we attended to 350 customers, who mainly wanted sunscreen at that post.

I am amazed at what a biker can fit on 'the Bike'. They came from far and wide, including Perth, Adelaide, NSW, Victoria and Queensland. Two of them would not have been able to ride home – one had a knife injury and the other had an upper leg injury caused by the metal bar of a camp chair which broke and went into his leg!

My OM (VK5AKZ) helped in the communications bus as one of our members dislocated his shoulder. The crowd leaving the track after the races was bumper to bumper for some hours to get away – including an accident on the only exit road.

We stayed overnight at our camp site and until about lunch time Monday, as the track area still had to be covered. Even then the traffic on the way off the island was still bumper to bumper. Overall this was a busy, but great, extended weekend.

## A weekend in Ballarat

The Ballarat Amateur Radio Group (BARG) held their annual hamfest on Sunday, 23rd October. We heard that some ALARA members from South Australia were planning on being there and a gathering of ALARA members, including some from the EMDRC club and the Midlands Radio Club, were on hand to greet them. Some of the

members had dinner on the Friday night with the SA contingent. It is always good to have the opportunity to meet face to face with people you speak with on the radio.

It was also a great pleasure to meet up with Gwen VK3DMS who arrived with family members, as we had not managed to catch up with her for a while. Christine VK5CTY took the opportunity of having a long chat with Gwen as they had much news to share. Dianne VK3FDIZ from the WIA was also present wearing her official badge.



*Photo 2: ALARA members at Ballarat: back L-R: Margaret VK3FMAB, Jenny VK3WQ, Jenny VK5FJAY, Dianne VK3FDIZ, Jean VK3VIP, Monica VK3FMON, and front Gwen VK3DYL and Christine VK5CTY.*

# VK2news

Tim Mills VK2ZTM  
vk2ztm@wia.org.au

The NSW Planning inquiry, which was an opportunity to submit requests for a better antenna installation approval process from your local Council, should be handing down an interim report this month. This was a wide ranging inquiry, antennas being just a part of it.

**VK2WI** news bulletins will take the usual summer break across the Christmas period. The last evening bulletin will be on 18 December and will resume on 15 January. There will be morning bulletins – at the usual 10 am slot – during the break. There were a lot of earthworks at the ARNSW VK2WI Dural site in late October when water was laid and conduit systems for lighting and coax feeds installed. Further work on installation of cables will occur during the holiday period. The committee of ARNSW, on advice received, has declared the Dural property a No Smoking area. It is in a bushfire prone environment. The committee of ARNSW has observed some altercations between visitor's dogs and other visitors – including young children. This could result in an injury and as required by law we need to maintain a safe environment for all persons attending the Dural site. In the interest of safety, ARNSW has decided to ban dogs at the Dural site. The above items have been broadcast via the Sunday bulletins.

Next year ARNSW will conduct a Foundation course on the Sunday before the Trash & Treasure at the Dural site. The assessments will be on the T&T morning. The first course for 2012 will be Sunday 22 January with the exam and T&T event on Sunday

29 January. This means there will be a Foundation training course available every two months. There is also likely to be a full course for Standard and Advanced licenses over several weeks during the year. While it is a few months away, the AGM of ARNSW will be held in April, 2012 and a call for nominations to the committee will be made toward late February.

**Jeff Pages** VK2BYY has become quite an author over recent years. He has still had time to be on the VK2WI Broadcast team. He has just published his fourth novel, 'Cry of the Bunyips'. Jeff's email is [jeff@barefoottimes.net](mailto:jeff@barefoottimes.net)

It is now three months until the next **CCARC** Field Day at the usual Wyong venue, the racecourse, on Sunday 26 February. When the Club is not planning the field day, they have been expanding their repeater building to accommodate additional facilities. They are also active with two monthly meetings. Nets on Saturday at 8.30 am and the Foundation class net on Wednesday at 8 pm on repeater VK2RAG 146.725. The club rooms are open every Saturday from 10.30 am and Tuesday evening from 7.30 pm and every second Wednesday from 10 am. VK2WI is relayed through the VK2RAG repeater. Check their club web site [www.ccarc.org.au](http://www.ccarc.org.au) for all details, advises Rod VK2FVRJ.

The **VK2RSY** Sydney 10 metre beacon at Dural developed an antenna fault late October. Previously on a vertical antenna, it was restored using a multiband horizontal dipole. Major antenna works are planned early 2012, when a vertical will be installed.

**Jeff's Walk** concluded on Sunday 2 October after he – VK4XJJ – covered 4971 km, to end at Steep Point in VK6. Jeff set out to raise \$80,000 for NETS. A little short of the mark, they looked at other fund raising ideas and one was to shave off beards. Grahame VK2FA, who had been arranging many radio interviews for Jeff during his walk, made the mistake of offering to have his 30 year old beard get the chop. Well, it happened and his XYL Judy VK2HZV had never seen Grahame without a covered face. So, on Friday 28 October both Graham and Jeff became 'clean shaven'. There is a lot of material about NETS and Jeff's Walk to be found at [www.nets.org.au](http://www.nets.org.au)

**WICEN NSW** has been busy since their AGM with mainly exercises. The web site has been updated so check out [operations@nsw.wicen.org.au](http://operations@nsw.wicen.org.au). Contact by email to [www.nsw.wicen.org.au](http://www.nsw.wicen.org.au)

**The Hunter Region Group** Monday event news bulletin will take the regular break from early December until early February. Many clubs and groups also take a break from meetings in January and they are asked to use the VK2WI News Bulletins to inform their members and visitors to their region of meeting arrangements during this period.

On behalf of **ARNSW** may I wish readers all the best for the forthcoming festive season, may your Christmas stocking contain that new rig and may 2012 be a good year for you. See you in the January/February issue.

73 – Tim VK2ZTM

## HAM AND WINE FEST 2012

4 February 2012 at MacLagan

More info please contact:  
Rick VK4NRL@wia.org.au or  
Neil on [holmie@bigpond.com](mailto:holmie@bigpond.com)



## VKLOGGER | Are you an active radio amateur?

Consider registering on [vklogger.com](http://vklogger.com) (free). Three propagation loggers (HF, 6 m, and 2 m, 70 cm and above, plus chat channels and a large discussion board holding a wealth of information.  
<http://www.vklogger.com/>

# VHF/UHF - An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

## Weak Signal

Things are certainly picking up as summer approaches.

Another opening occurred to ZL over the period from October 20th to 21st. Many contacts were made on 2 m with Ross VK2DVZ featuring heavily for 'our' team, while Nick ZL1IU ably represented the All Blacks! Other participants included VK2ZT, VK2MER, VK2AMS, VK2QO and VK4JMC with ZL1TPH, ZL1AKW, ZL1SWW, ZL1BCJ, ZL2WHO and ZL2TAL. Several 70 cm contacts were achieved between VK2DVZ, VK2ZT and VK2AMS to ZL1IU and ZL2TAL. Ross VK2DVZ attempted a contact on 23 cm with Ray ZL2TAL, and voices were heard each way, but they were unable to complete on SSB due to QSB.

On the 21st Steve ZL1TPH operated portable from Moirs Hill in RF73HM at 350 metres ASL with nice coastal views towards VK. He reports that the Sydney VK2RSY beacon on 144.420 MHz was S2. He worked on 2 m VK2QO, VK2BHO, VK2DVZ, VK2ARA, VK2FE, VK2EI, VK2ZT, VK2AH, VK2MER, VK2ZCV and VK4JMC. All signals from VK2 were exceptionally strong. The path to VK4 was marginal but there.

At the end of October, the weather charts were showing a high pressure cell nestled nicely in the Bight – normally a good indicator of enhanced tropo conditions. However, the weather was a bit unsettled which tends to disrupt things somewhat. The morning of November 1st saw the first contact across the Bight on 2 m from VK5 to VK6. At 2305 Z, Brian VK5BC worked Derek VK6DZ over a distance of 1920 km. The VK6REP 2 m beacon in Esperance was also being heard in the east, in VK5, VK3 and on the morning of November 2nd as far as Leigh VK2KRR's QTH – a distance of 2314 km.

As the high moved east, conditions between Melbourne and

Adelaide were lifted and 5x9 contacts were had between the locations.

Also during this period Mark VK2EMA successfully worked into the Adelaide area on 2 m to VK5GF, VK5BC, VK5AKK and VK5ZK and on 70 cm to VK5BC.

## MAD Report

Michael VK3KHH reports on the recent Microwave Activity Day in the south – this time focussing on 23 cm to encourage both field and home operation and also to encourage people to explore a band on their rigs that don't get as much use, perhaps, as it should. *The VK3 and VK5 Microwave Activity Day was held on Sunday, 16th October.*

*The weather was definitely against us for, although no rain eventuated, the winds were so strong that portable operations were, in the main part, impractical. My own plans for portable operation had to be aborted as the winds were between 30 and 40 knots straight up the side of Arthur's Seat.*

*So I, like most others chose to operate from home. The focus was on 1296 MHz and I must admit to being very happy at the number of contacts I made.*

*I managed 11 contacts on 23 cm, including VK3AXH and VK3IDL in Ballarat, VK3MY, VK3YFL/P, VK3XPD, VK3RU and VK3TPR/P all around Melbourne, VK3QM, VK3PY and VK3BA in Geelong, and finally VK5DK/P (a group of Mt Gambier amateurs) at 'The Bluff', a distance of 402 km. A great result for 1.5 hours of operating between 8.30 am and 10 am local time on a Sunday morning. VK3MCW made contact with Ian VK3AXH, but was not heard in Melbourne.*

*I received the following report from Colin VK5DK about their portable operation:*

*'Worked on 23 cm: VK3AXH, VK3QM, VK3KH, VK3XPD and VK3PY.'*



Photo 1: Adam VK4GHZ in the operating position.

Worked on 2.4 GHz: VK3AXH and VK3QM, and VK5DK/p on 'The Bluff', QF02GG; very windy but no rain.'

*Thanks for making the effort to everyone who came on air despite the conditions. Microwaves continue to flourish in the South East!*

## VK4 Microwave Day Report

One week after the southern Microwave Activity Day, on October 23rd, the VK4's had the second of their Microwave days with, by all reports, an excellent turnout.

*Adam VK4GHZ reports: What a perfect day to be out and about, and playing radio in the field. Blue sky, and mid 20s - take note Mexicans!*

*VK4GHZ/P consisted of Alan VK4WR, Graeme VK4FI and Adam VK4GHZ, and we were concentrating on 2.4 GHz activity, from northern NSW.*

*Contacts on 13 cm were made using VK3XDK transverter boards with a Spectrian 30 W PA, and 21 dBi grid pack antenna as follows:*

*VK4OX (247.7 km), VK4KZR (186.0 km), VK4OE/P (194 km), VK4TJP (148.4 km), VK4JMC (145.5 km), VK4OX (271.9 km), VK4JMC (166.6 km), VK4KZR (213.8 km).*

*The 'operation' actually started on Saturday, doing a recce for another potential field day site, and then visiting some wineries in the Stanthorpe region.*

*Conveniently, our accommodation for Saturday night was within crawling*

distance of the Ballendean Tavern. Knocking the top off a few coldies before dinner, and checking in with VK Logger, it was at this time I discovered that the [vklogger.com](http://vklogger.com) domain was totally down. Damn service provider. Again. After a 15 minute call to support from the mobile, it was back on line.

Out on Sunday morning, and up to Mt Richmond, QG61db, just east of Tenterfield in NSW, for activity commencing at 10 am.

Equipment consisted of the 2.4 GHz transverter with a Yaesu FT-817 as the IF rig. An IC-910H was used for 2 m and 23 cm. A B&D Workmate makes a very handy collapsible table. Due to the activity only running for a few hours, power was provided by a car battery, so no need to muck around with a generator.

We then relocated to Mt MacKenzie, QG50, on the western side of Tenterfield. Our brief operation from here was minimal – 2.4 GHz only and VK Logger Microwave iChat for liaison.

The best distance today was from Mt MacKenzie with Adrian VK4OX, (in Maleny QG63KF) over a path of 271.9 km. Very pleased with that, and we were delighted to provide Adrian with a new square on 13 cm.

Some comments and thoughts from today! It was fun, and provided a great shakedown of gear, and field day related procedures.

Trying to liaise on 2 m SSB using a Yagi was a little awkward, and a bit clumsy, especially when you cannot hear everybody, and have to rotate the Yagi regularly. (It would be a different situation during a field day, where there is more time available, and operation is not so concentrated)

Using the VK Logger iChat as well as 2 m FM (with omni antenna) was quite efficient. When trying to peak on a weak signal on 2403 to begin with, it helps not having a second SSB receiver going, and the iChat was a nice silent way of liaison... not having to constantly wrestle with multiple volume controls.



Photo 2: Doug VK4OE with van and antennas.

It was easy to have the notebook computer connected to the Internet using the 3G mobile phone as the modem.

Doug VK4OE was also out in the field, and he reports: I was very pleased with the number of microwave stations who were on-air on the day, or trying to be so. Weather wise, it was a beautiful day on 'Straddie' and, apart from bruising my fingertips when the driver's door closed on them, everything went very enjoyably.

Stations worked on 1296 MHz were VK4NE/4, VK4WA, VK4KSY, VK4GHZ/2, VK4MF and VK4ZQ/4. Sorry to Frank VK4FLR as I wasn't aware at the time that he was on 1296 during the morning but the propagation wasn't favouring us on the day.

On 2403 MHz I had QSOs with VK4GHZ/2, VK4OX, VK4WA, VK4KZR and VK4JMC, and on 10368 MHz I worked VK4EA, VK4MF, VK4IIO and VK4UH. Despite being some distance from each other (in other words not close where normal leakage takes place), VK4IIO, VK4UH and I enjoyed a rare 'three-way' QSO on 10.3 GHz.

Rod VK4KZR participated as a home station:

Thanks to Doug VK4OE and the rest of the SE Queensland microwave operators for such a good turn out last Sunday. I participated as a home station but unfortunately operation was restricted to operation on 2403 MHz only.

Two-way SSB contacts were made with the following stations: VK4OX, VK4OE/4/VK4GHZ/2 (Mt Richmond) and VK4GHZ/2 (Mt Mackenzie) - best DX at 213 km and a new grid square.

My home station for this band consists of a homebrew transverter (Minikits) + GaAsFET PA (four watts) and 900 mm grid-pack at 15 m.

Other comments - this was a great shakedown test for the forthcoming field day contest.

Reference locked PLL oscillators are certainly a great advantage because you know exactly where the transverter is. Ironically it's my 2 m IF radio that needs a calibration.

iChat on the VKLOGGER is a very useful facility - even as an adjunct to using talkback frequency since there is a history log. It's not always possible to be in front of the radios, so it allows you to quickly see what is happening or has been happening.

It was very encouraging to see some new callsigns listed as having been active, particularly on the higher microwave bands.

**New microwave band records - 135 GHz, 243 GHz and 324 GHz**  
Alan VK3XPD has been continuing his experiments at the extreme end of the microwave spectrum. He reports on his latest efforts:

On Friday 21/10/2011, we activated the 135 GHz, 243 GHz and 324 GHz microwave bands in VK3.

Despite the most unfavourable weather conditions, Michael VK3KH and I went out to Casey Sports arena in Cranbourne, east of Melbourne to test a pair of new transverters that I had just finished building. Our initial on-site testing over a 10 metre path was to check the functionality of the gear.

We started with 324.48 GHz. Signal reports for our SSB signals were 5x9 both ways. At this time, I'm unsure if we in VK have any allocations in this band segment. There have been recorded amateur QSOs on 322 GHz in the USA and Europe.

(Ed: Frequencies above 250 GHz are not assigned to any service by ACMA, so technically there is no 324 GHz band in VK. However amateurs may operate on these frequencies because they are not assigned to any other service).

The next frequency we activated was 243.36 GHz. Signal reports were 5x9 +10 both ways. Our final frequency was 135.20 GHz, again with 5x9 +10 both ways.

Having seen such big signals over our 10 metre path, we decided to try our luck with an optimistic 400 metre path.

We failed to hear anything on 135 GHz. This was not surprising with all the recent wet overcast weather, water sitting in puddles in the nice green grass and the very high relative humidity at the time.

Tests over a 200 metre path yielded much the same results. Nothing heard. Clearly we had too much atmospheric attenuation.

A 100 metre path yielded mixed results. We heard our 135 GHz ident signals but they were so very weak that SSB was going to be impossible. Despite much effort to optimise our dish pointing and the gear sensitivity, the signals finally disappeared as the afternoon passed.

On each series of tests using non-amateur band frequencies, we noticed that conditions (propagation) for these upper microwave frequencies were changing very fast - even over these relatively short paths.

As the afternoon progressed towards 1600 hours local, it became somewhat chilly. With time running out, we decided to run our last tests over a 25 metre path.

Our 135 GHz QSO was 5x9 both ways. The 243 GHz QSO was also 5x9 both ways. Our final QSO on 324 GHz was 5x5 from Michael to my 5x2 report.

All in all it was a very successful day despite the obvious poor weather. Amazingly, the QSOs we achieved on these three widely spaced band segments were achieved by this single pair of transverters.

At this time, we have not decided whether to claim Australian Distance Records for these 25 metre QSOs. Clearly with some better weather and accompanying low humidity, these distances will certainly be improved on.

A full write-up on the equipment used will be published shortly. Suffice to say that the hardware is very similar to the 78/122 GHz transverters I built previously. This time the 'pump' source is 27.04 GHz. So, the 5th harmonic is 135.2 GHz, 9th harmonic is 243.46 GHz, and so on.

Our VK9NA website at [www.vk9na.com](http://www.vk9na.com) has more information on the techniques used. Related articles will also appear in DUBUS 4/2011. Subsequent to this report, Alan and Michael have claimed, and been awarded, new distance records for these three bands. Several days later, on October 23rd, Alan and Russell VK3ZQB extended the records for 135 GHz and 243 GHz to 50 metres.

## New EME digital records

After much discussion, the WIA has decided to accept distance record applications for digital mode contacts via EME. These will be classed separately to contacts in other non-digital modes such as CW and SSB.

The first of these records have been awarded as follows:

12/01/11 - 2 metres - VK9NA to EA2AGZ - 18306.4 km

01/10/11 - 23 cm - VK2AMS to VK2JDS - 325.3 km

## ARRL EME contest 22/23 October, 2011

Doug VK3UM reports on his efforts during the recent ARRL EME Contest:

It's like going to the dentist... I know it will hurt... and I will take the rest of the week to recover, and as usual it did! The Declination is now playing a factor for many given its decline due to the current Moon's

cycle. The siting of many antennas nowadays is posing a problem and it will get worse! Some stations I can no longer work as we no longer have common visual windows. Many guys now require a higher elevation which results in a lower elevation for me. This does not worry me given my low horizon, but concentrates activity into an even tighter time frame.

Conditions... Wildly swinging on 70 cm, really quite amazing. It made for hard work at times because of deep fading and rapid polarisation changes that were evident over the space of a minute. I have not seen that for a while and reflects the rise in solar activity. 23 cm was subject to deep fading at times but, in general, it was very good. Libration was at a minimum that weekend but Faraday caused the problems. The stand out signal from Gerald K5GW on 70 cm was clear evidence of the advantage of circular polarisation on that band. Polarisation offset to NA and EU was theoretically aligned for most of the time which is an advantage to me at such declinations. However Faraday messed that right up! Finished with 21 QSOs on 70 cm and 47 on 23 cm which is about average for contacts/time over the years. I did not spend too much time on 70 and will concentrate there in November. On Sunday's Moon set I left with three stations calling me at 0.2 degrees so there are many more to work.

The following were worked on 23 cm: JA8ERE, OK2DL, OZ6OL, VK4CDI, G4CCH, IK1MTZ, ISMPK, SP6JLW, ES5PC, JF3HUC, RD3DA, AL7RT, K1JT, N2UO, NA4N, K5AZU, WA6PY, VA7MM, NR5M, W9IIX, JR4AEP, K5GW, RA3AUB, SP7DCS, OH2DG, SM3JQU, DF3RNU, SV1BTR, SM4IVE, OE5JFL, 9A5AA, LZ1DX, PA3FXB, DL4DTU, OK2ULQ, G3LT, F2TU, IK3COJ, F5KUG, I1NDP, DL3EBJ, SS9DCD, IZ1BPN, W5LU, VE6TA, and the following were worked on 70 cm: DL1YMK, SM4IVE, DG1KJG, SD3F, F6DRO, OZ5MM, OH2PO, SV1BTR, JA9BOH, SP6JLW, F2TU, SP7DCS, N4GJV, K5GW, VE6TA, VK4EME, W8TXT, ES5PC, JA0TJU, KORZ and K1JT. Please send any Weak Signal reports to David VK3HZ at [VK3HZ@wia.org.au](mailto:VK3HZ@wia.org.au)

# Digital DX Modes

Rex Moncur VK7MO

## 144 MHz FSK441

Welcome to Simon ZL4PLM who is putting out an excellent signal from Christchurch, New Zealand and had his first meteor scatter QSO with Rex VK7MO on 29 October. For this first QSO, Simon was under instruction from veteran meteor scatter operator Starr ZL3CU. 48 readable pings were received from Simon in an hour which compares to typically 5 to 10 from Starr whose QTH is also in Christchurch – it will be interesting to see if this large number of pings is typical.

## 144 MHz JT65

Welcome to Rob VK3XO near Yea who has an excellent signal on JT65 working a number of stations EME and has good and consistent signals down to Hobart via tropo-scatter.

## Sending Single Tones on JT65 to check for propagation

It is possible to send a single tone on JT65 by inserting '@1270' without the quotes in any message box and then ticking that box. As a single tone puts all the energy into a single bin and runs for the full 60 second TX period (cf 48 seconds for JT65 text messages) the signal strength is improved by 3 to 4 dB and it becomes possible to identify the presence of a weak signal on the waterfall down to around -33 dB on the WSJT scale. This approach can be very useful for testing for the presence of a weak signal when you are waiting for a marginal path to open. The signal tone '@1270' gives a tone of 1270 Hz which is the same as the reference tone when transmitting text on JT65 and thus identifies where you should see the signal when the station moves to text. It is, however, possible to send other tones if one wishes such as '@1000' to provide a 1000 Hz tone.

## 10 GHz DXpedition to rare grid square QF40 Flinders Island

Rex VK7MO, Eric VK7NFI (the pilot and owner of the light aircraft used



Photo 3: Rex setting up the plastic dish on Peter's ute.

to visit the island) and Peter VK7KPB (who provided on-site transport and accommodation) activated the rare grid square QF40 on Flinders Island on 22 October on 10 GHz. While Flinders Island is at the intersection of four grid squares, the other three can be covered from the mainland of either Tasmania or Victoria but QF40 is the rare one that requires a visit to Flinders Island. In order to fit the equipment into the minimal space behind the seats in Eric's small two-seater aircraft, it was necessary to design a compact cut-down 10 GHz system. Following a request on the VK-Microwave reflector, Scott N0EDV recommended a small 47 cm ABS plastic dish which can be removed with a single bolt to readily fit down behind the seats of the aircraft and is available at: [http://www.sadoun.com/Sat/Products/Eagle-Aspen/Travel\\_Dish-20-inch-Antenna.htm](http://www.sadoun.com/Sat/Products/Eagle-Aspen/Travel_Dish-20-inch-Antenna.htm)

The 10 GHz station was reduced to two watts to allow operation from a small gelcell as a back-up, although in this case Peter VK7KPB kindly provided a charged up tractor battery. It was also necessary to find a small wooden tripod that could be disassembled to fit into the aircraft. Joe VK7JG and Alan VK7AN had visited the island and recommended

a suitable site in QF40. Rex and Eric started off from Wynyard airport but soon ran into low cloud and had to return and wait for the WX to improve. Later a second attempt was made with reasonably clear conditions up to the north east. coast of Tasmania when the aircraft turned towards Flinders Island. On approaching Flinders Island from the south west, low cloud blocked access to the Lady Barron airstrip. An approach from the south east was also blocked by cloud and it was necessary to approach the airstrip from the north with low cloud covering the hills. Fortunately, it was possible to track along a road to the gravel airstrip.

Next morning Peter VK7KPB transported us to Middle Patriarch mountain. To get a clear take-off, the dish was mounted on the tray of Peter's ute.

Contacts completed were:  
VK3HZ R-10, S-13 JT65c Johns Hill lookout in the Dandenong ranges  
313 km  
VK3HY 4-1, 4-1 SSB Johns Hill lookout in the Dandenong ranges  
313 km  
VK3HZ 5-1, 4-1 SSB Johns Hill lookout in the Dandenong ranges  
313 km

VK3TPR R-13, S-16 JT65c Johns Hill lookout in the Dandenong ranges 313 km  
Conditions at John's Hill were poor with rain but clear at Flinders Island  
VK3QM 4-1, 3-1 SSB Bayview near Geelong 399 km  
VK3PY 3-1, 3-1 SSB Bayview near Geelong 399 km  
VK3NX 3-1, 3-1 SSB Bayview near Geelong 399 km  
VK3ALB 3-1, 3-1 SSB Bayview near Geelong 399 km  
VK3ZQB S-22, R-23 JT65c Portland 543 km

Russell VK3ZQB's signal was spread considerably, at least 20 Hz, which suggests that forward rain scatter was involved and might explain getting over a relatively long distance for non-enhanced tropo scatter.

The following stations were in Gippsland at relatively short distances:

VK3s WRE/PF/ZYC at Currajong 220 km  
VK3BQJ at Swan Reach 244 km

Nothing at all was received even with single tones and despite the fact that this was a much shorter distance than the other contacts and the fact VK3WRE and VK3BQJ could copy each other at well over S9. Ralph VK3WRE reports there was poor WX to the south and a possible inversion below them, which might be the explanation.

Nothing was copied of VK5DK at 686 km but that is not unexpected in what was poor conditions.

The WX was much better for our safe return to Wynyard.

While there were some unexplained failures at the shorter distances, the trip was a success and proved the viability of the equipment for our next project - three more rare Bass Strait island grid squares on King Island.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

Brian Cleland VK5BC

During October six metres really came to life with international openings occurring on most days during the month but particularly in northern VK and on many days these openings extended south to VK3, 5, 6 and 7. Most days JAs could be worked or indicators from the north heard. Highlight for the month was a great opening from VK4 to America, Canada and Mexico.

The opening to North America occurred on 26 October with stations as far south as Hervey Bay and north to John VK4FNQ in Charters Towers

working several stations. Paul VK4MA near Hervey Bay reported working 15 North American stations including 3 x VE7s. Wayne VK4WTN in Hervey Bay worked VE7SL, K7CW, K6MYC all on CW and KE7V on SSB at 5/5. Further north in Mackay Kevin VK4BKP reported the band open for about 40 minutes and working N8DEZ, K7JA, N6RMJ, W6FL, K6GXO, N6ED, KE7V, AE6ZV, K7CW, N7NW as well as XE2D Roman in northern Mexico with signals ranging from 5x1 to 5x9. Later the same day to complete a great day on six metres Kevin also worked KH6SX, KH6RH and KH7Y. John VK4FNQ in Charters Towers also worked several stations including K7RWT, N7DB, AD6WL, KE7V, K7CW and K7JA.

Some of the other significant openings/contacts during the month are as follows:

On 4 October Art KH6SX worked Mark VK8MS 5/9 and John VK8JM 5/5 in Darwin. Mark also worked Fred KH7Y. The DX expedition of 3D2R on Rotuma Island also worked many JAs as well as several KH6s as did 5W1SA from Samoa. Great to see activity from these Pacific areas.

Early evening on October 5, Gary VK8AW in Darwin worked Fred KH7Y and later that night Dale VK4SIX in Atherton worked several JAs as well as Willem DU7/PA0HIP, Li BA4SI and HL3IUA.

The first evening TEP opening this cycle to southern VK occurred on the 11th October. Andrew VK3OE reported that the Chinese TV on 49.750 was strong and Brian VK5BC noted the same. Brian found the JA2IGY beacon on 50.010 was audible and at 0943 UTC worked JA3EGE SSB at 5/5. Then at 1143 UTC worked Charlie VR2XMT in Hong Kong SSB at 5/5, Charlie was audible for over 1/2 hour and was also heard working Dale VK4SIX, VK6KP and VK8.

Next morning 12th October at 0050 UTC the band again opened to JA from VK5 with Brian VK5BC working JA2MBF, JA3EGE and JA3JRA, all SSB. This was followed by another opening on the 13th with John VK5PO and Garry VK5ZK working several JA's in CW.

Photo 4: Eric VK7NFI with his aircraft at the Lady Barron air-strip.



Good openings from JA to VK5 followed on several days including 17th, 21st, 22nd, 26th and 28th with VR2XMT in again on the 26th.

17th October a good opening from JA to VK5 which extended down to VK7 with Frank VK7DX and Joe VK7JG working several JAs as well as Li BA4SI.

Big opening to KH6 from VK2 and VK3 on 27th October. Roger VK5NY/2 in northern NSW first reported Art KH6SX and then conditions moved further south with several VK2s including Brad VK2QO, Mike VK2ZQ, John VK2FAD and Philip VK2HN working several KHS including KH6SX, KH6HI, KH6U, KH6RH and KH7Y. Conditions continued to move south with eventually Andrew VK3OE and Norm VK3DUT working several of the KH6's. Later in the opening Remi FK8CP was heard by some stations and worked by VK3OE.

At around 0600 UTC on the 29th October the VK4RTL beacon was reported in VK5 and Brian VK5BC, as well as being able to hear Wade VK4WM in Hervey Bay working KH6HI in CW, could also hear KH6HI. Brian called Albert KH6HI and completed a contact in CW 599 and then followed a further SSB contact at 5/3.

Rick VK6XLR in Geraldton WA has had a great October. Mainly contacts from JA, especially an opening on the 29th where he worked 22 stations. Rick has added four new countries to his list with Charlie VR2XMT in Hong Kong, Roger 9W6RT in East Malaysia, Li BA4SI in China and Lee DS4EOI in South Korea all being worked during October, and he has heard Dave A92IO in Bahrain just in the noise, although not enough to copy.

From Darwin Gary VK8AW reports the following:  
A short opening to JA on 3 October with Hide JR6EXN appearing around 1330Z at 5/1. On the 5th we had Hawaii with Fred KH7Y coming in at 0725Z 5/3 followed by JF2WMH at 1030Z. On the 6th Fred KH7Y was 5/9 at 0650Z and then the conditions went west with 9W6RT at 1335Z at 5/8.

The 8th saw Willem DU7/PA0HIP 5/7, 9W6RT 5/5 and then conditions went west again with A92IO making the log at 5/3 on SSB. Signals then fell short back into West Malaysia with 9W2TS 5/3 and then back west with A71EM 5/5 on CW at 1345Z. I also had A61Q 5/2 (he was mobile) but he could not hear me at 1350Z. On the 9th we had Charlie VR2XMT bashing the needle 30 over 9 from 1248Z and then DU1GM joined in around 1250Z followed by 9W6RT at 1320Z.

On 10th October I quickly worked 9M2IDJ 5/9 on 50110 whilst waiting for the band to shift west but nothing further eventuated. On the 11th conditions kept changing long/short with ST2AR around 1100Z calling for hours with no takers. Then VR2XMT 5/9 at 1140Z, BA8AT 5/9 at 1155Z then it shifted to A45XR 5/2 at 1315Z then short again with Satu 9N1AA in Nepal 5/6. Then it went long again with Dave A92IO 5/2 at 1400Z then short again with 9M2ESM 5/9 at 1410Z.

The 12th saw a good opening with ST2AR from Sudan on CW from 1130Z till 1250Z. Then it fell short with 9W2MSO 5/9 at 1255Z, 9N1AA 5/6 at 1300Z, VR2HF 5/9 at 1310Z followed by A45XR 5/5 at 1315Z, Andrew 9V1TT 5/9 at 1323Z, BA8AT 5/9 at 1333Z and 9W6RT 5/5 at 1338Z.

On the 15th we had all the usual JA, DU, BV and VR beacons in again with just Eddie DU1EV 5/9 at 1225Z and Charlie VR2XMT 5/9 at 1232Z making the log. On the 16th we had very strong Es into Indonesia with YB0AKM 40 over 9 at 1230Z for hours then Andrew 9V1TT appeared around 1235Z 5/9 who worked many VR's and JAs.

On the 17th we had VR2XMT at 1324Z then 9V1TT at 1332Z, BV100 at 1333Z, 9W2ODT at 1334Z and YB0AKM at 1337Z and 9W6RT at 1344Z followed by Dave A92IO who rounded the night out at 1412Z 5/3 for an hour looking for VKs/Pacific.

On the 24th again we had 9W6RT 5/9 at 1350Z, who is a regular appearance most nights, followed by Eddy XV1X from Vietnam 20 over 9 on SSB at 1400Z.

The 28th saw Dave A92IO appear early at 0600Z 5/5; he called for hours with not many takers on 110. On the 29th Art KH6SX was 5/5 around 0512Z and then it went west with the A6 TV roaring in 30 over 9 but I could not raise anyone that way.

The A6 TV from the middle east on 48.250 MHz appears most nights anywhere from 0600Z through to 1500Z, usually peaking twice during the evening but not coinciding with the 49ers.

Certainly exciting times in Darwin on six metres with the contacts with Mark VK8MS and Gary VK8AW working Rob ST2AR in Sudan a big highlight

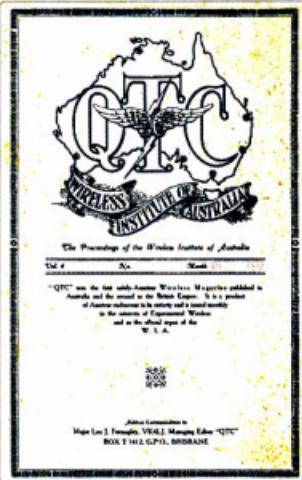
For those interested in grid squares Richard VK5UK reports that he will be operational from Elliston on the west coast of South Australia PF76 from 20th December until at least the end of January and that he may also be able to take a trip to neighbouring grid PF77 if there is enough demand. He will be 'working' during this time and not available on demand but that there should be plenty of time for radio. He also intends to be running WSPR on 6 m and could be alerted to openings by text message, contact details on VKLOGGER.

VKLOGGER now has a new version of iChat which includes colours and the ability to run it in a separate window as well as overlaying it on the logger screen. The combination of this with VKLOGGER is a great tool for VK DXers and provides many features including beacon details, operator information, etc. as well as a history of postings on the logger. If all operators post details of contacts it also provides a means of following propagation trends, assisting other VK's in working that special DX. It can be found at <http://www.vklogger.com/>

Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)

# Hamads

## WANTED - NATIONAL



### Early copies of QTC magazine.

The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves. QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire! The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only. Please contact Peter VK3RV via email [vk3rv@wia.org.au](mailto:vk3rv@wia.org.au) or c/o the National Office in Bayswater if you can help us locate this important part of our history.

## FOR SALE - NSW

Magnetic bases and mobile whips, negotiable. MDS down converter, \$5. Hills Telomast, 12.5 metre (40 foot) in four extendable sections, \$100.

### Satellite Equipment Package

2.4 m mesh dish on polar mount, Chaparral C-Band Polarator feed, Norsat Gold 15K C-Band LNB, 0.61 m (24") actuator, Winersat WR920 analogue receiver as dish and feed controller, \$220.

### Satellite Receivers

Humax IRCI 5400, \$80. UEC DSD660, \$70. Nokia 9500S with DVB2000 software, \$80. Xanadu DSR, \$15.

### Other parts

Chaparral CoRotor II C/Ku feed fitted with Norsat Gold 15K C-Band LNB and Gardiner 0.7 dB Ku LNB, \$90.

Dynalink C-Band LNBF 25K, \$20.

California Amp C-Band LNBF 25K, \$20.

Chaparral Model C Ku LNB, 9.75/10.75 GHz Lo's, \$10.

ACESAT Twin Ku LNBF's, \$20 each.

California Amp Ku LNBF, \$10.

Sharp Ku LNBF's, \$15 each.

DX Antenna DSA527N Ku LNBF, \$5.

DX Antenna DSA527D Ku LNBF's, \$5 each.

Zinwell SAB-09C Coax Relays, \$15 each.

4 x Irdo CAM's, not CI, various ages

and S/W, \$20 each

Other miscellaneous parts, feeds, power

inverters, DiSEqC switches, negotiable.

Contact Roger Woodward VK2WW,

[vk2ww@hotmail.com](mailto:vk2ww@hotmail.com) or phone

02 9546 1927.

## WANTED - NSW

Headphones, 2K, suitable for crystal set. Phone Stan Dogger VK2KSD QTHR 02 6677 9292

Talking wattmeter for blind amateur, LDG TW-1 or similar.

Contact Maurie Camps VK2DCD, Box 72, Coleambally, NSW. Or phone 02 6954 4631, or email [m.camps@bigpond.com](mailto:m.camps@bigpond.com)

## FOR SALE - QLD

House and land for sale, with council approval as a radio transmitting site. Land area is just less than two acres - 6797 sq m. House area is 310 sq m, five bedrooms, of which two bedrooms are part of a Granny Flat. Covered verandas surround the house. Two bathrooms, and provision for a third. Three entertainment areas. ADSL2+ Telstra.

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Tower has been taken down but footings are in place. Antennas in place are a full size 80 metre horizontal loop and an off centre fed Windom.

Property is located at Clear Mountain, approximately 35 km north west of the Brisbane GPO.

Offers over \$695,000.

For more information and pictures on CD please contact me at email [vk4zmm@bigpond.net.au](mailto:vk4zmm@bigpond.net.au) Malcolm VK4ZMM

## WANTED - QLD

Wanted is the external VFO for the FT707, with cables and in GWO.

Contact Mervyn VK4DV by phone, nights, on 07 4928 5537 or by email [vk4dv@yahoo.com.au](mailto:vk4dv@yahoo.com.au)

## FOR SALE - SA

Christmas is coming soon. Shout yourself, or get the significant other to get you a great present. The VK5JST Antenna Analyser kits are available through the South Coast Amateur Radio Club. Get in early as stock goes quickly at this time of the year. See [www.scarc.org.au](http://www.scarc.org.au) or contact SCARC, PO Box 333, Morphett Vale, SA. 5162. Alternatively email [kits@scarc.org.au](mailto:kits@scarc.org.au)

## FOR SALE - WA

Icom IC-718 100 W HF transceiver, S/N 0846311. Brand new, unopened, and in original box. Brian VK6ABM QTHR [vk6abm@wia.org.au](mailto:vk6abm@wia.org.au) or phone 08 9574 6111.



## Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

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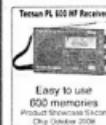
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Dominic Dahl VK2YDD  
• Timothy Mills VK2ZTM / VK2UJ  
Gilbert Hughes VK1GH

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• Alan Baker VK8AB  
Mark Sellers VK8MS

\*Denotes Committee Chairman

\*Denotes nominated by the WIA Board  
(Nominated Member)

## Election of Directors Call for Nominations

ACN 004 920 745

Pursuant to clause 14.1 (c) of the Constitution the WIA Board has determined that the election of directors shall be conducted by postal ballot.

Three directors retire at the conclusion of the next Annual General Meeting which will be held at Mildura, Victoria, on the 26th May 2012, namely Philip John Wait, Christopher Brian Platt and Robert Stanley Bristow. Each is eligible for re-election and Philip John Wait, Christopher Brian Platt and Robert Stanley Bristow have offered themselves for re-election to three of the three vacancies.

Nominations are called for from others also seeking election as a director of the WIA.

A director must be a voting member of the WIA and must hold an Australian amateur radio licence.

Any person wishing to nominate as a candidate for election as director of the WIA must deliver or cause to be

delivered to the Returning Officer by not later than 31 January 2012 a statement signed by the candidate signifying his or her willingness to be a candidate for election as a director together with; the full name, age, occupation and callsign of the candidate, and such other biographical details or other information as the candidate wishes to accompany the ballot papers, but in all not exceeding 250 words.

Delivery to the Returning Officer may be made by hand when the WIA national office is open at:

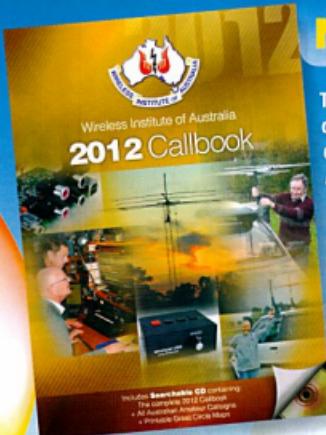
Unit 20  
11-13 Havelock Road  
Bayswater  
Victoria 3153  
or by mail to:  
PO Box 2042  
Bayswater  
Victoria 3153

Nominations received by facsimile or by electronic means cannot be accepted.

**Geoffrey Atkinson VK3AFA**  
Returning Officer

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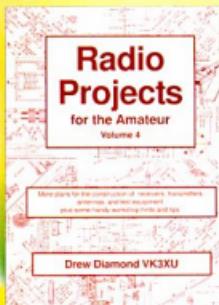
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Edited by George Brown, MW5ACN

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